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NO. _____

Supreme Court, U.S.
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IN THE

Supreme Court of the United States

OCTOBER TERM, 1989

JANET HARDUVEL, et al.,
Petitioner,

v.

GENERAL DYNAMICS CORPORATION,
Respondent.

PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE ELEVENTH CIRCUIT

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QUESTIONS PRESENTED FOR REVIEW

1. Does the *Boyle* government contractor defense create a new federal common law of product liability that displaces state tort law with regard to manufacturing defects?

2. Does the *Boyle* government contractor defense shift the burden of proof to the plaintiff to show that the equipment did *not* conform to specifications?

3. Did the lower court err in its failure to remand to the trial court for a factual determination under *Boyle,* in contravention of Rule 38(a), Rule 50(d), and the Seventh Amendment right to trial by jury?

4. Did the lower court err in its application of the standard of review on motions for judgment notwithstanding the verdict?

LIST OF PARTIES

Petitioner/Appellant/Cross-Appellee/Plaintiff

- Janet Harduvel, who was the wife of Captain Ted Harduvel at the time of his death on November 15, 1982.
- Christina Harduvel, minor child of Captain and Mrs. Harduvel.

Respondent/Appellee/Cross-Appellant/Defendant

- General Dynamics Corporation.

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Constitutional Provisions:

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Other Sources:

R. Craft, J. McCarthy & D. Mitzenmacher, *The Government Contractor Defense: A Fair Defense or the Contractor's Shield* (J. Madole ed. 1986) 17
Department of Defense, *100 Companies Receiving The Largest Dollar Volume of Prime Contract Awards* (U.S. Gov't Print. Off. 1988) 15
Department of Defense, *500 Contractors Receiving The Largest Dollar Volume of Prime Contract Awards for Research, Development, Test, and Evaluation,* (U.S. Gov't Print. Off. 1988) 15
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GENERAL DYNAMICS CORPORATION,
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PETITION FOR A WRIT OF CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR THE ELEVENTH CIRCUIT

Petitioner, Janet Harduvel, individually, on behalf of the estate of her deceased husband, and on behalf of their minor child, Christina Harduvel, files this brief in support of her request that the petition be granted.

OPINIONS BELOW

The opinion of the United States Court of Appeals for the Eleventh Circuit is reported at 878 F.2d 1311 (11th Cir. 1989), and is reproduced as Appendix A.

The Eleventh Circuit's denial of panel rehearing and rehearing en banc is unreported and is reproduced in Appendix B.

The opinion of the United States District Court for the Middle District of Florida is unreported and is reproduced in Appendix C.

JURISDICTION

This Court's jurisdiction is sought to review a final judgment of a court of appeals, pursuant to 28 U.S.C. § 1254(1) and Sup. Ct. R. 17.1(a),(c).

The judgment of the Eleventh Circuit was entered on July 31, 1989. Janet Harduvel's timely petition for panel rehearing or rehearing en banc was denied on October 31, 1989. This petition was filed within ninety days thereafter.

CONSTITUTIONAL PROVISIONS AND STATUTES INVOLVED

This case involves the "discretionary function exception" to the Federal Torts Claims Act, 28 U.S.C. § 2680(a); the Seventh Amendment right to trial by jury, U.S. CONST., amend. VII; and Rules 38(a) and 50(d) of the Federal Rules of Civil Procedure. The full texts of these provisions are reproduced in Appendix D.

STATEMENT OF THE CASE

On November 15, 1982, near Kunsan, South Korea, an F-16 fighter aircraft crashed on the side of a mountain and killed Captain Ted Harduvel. As the lower court recognized, Captain Harduvel represented "the very best of our Nation's citizens." *Harduvel v. General Dynamics Corp.*, 878 F.2d 1311, 1322 (11th Cir. 1989). Captain Harduvel graduated first in his class from the Air Force's elite advanced weapons school, he won the Air Force's prestigious "Top Gun" competition, and he was an F-16 instructor pilot. Captain Harduvel was thirty-five years old.

Captain Harduvel's widow, Janet Harduvel, brought this negligence and strict liability lawsuit in diversity jurisdiction to recover compensation from General Dynamics Corporation, the designer and manufacturer of the F-16 aircraft. The issues at trial focused on the cause of Captain Harduvel's death.

1. *The Crash:* The undisputed evidence revealed that on November 15, 1982, Captain Harduvel was the leader of a flight of three F-16 aircraft on a routine training mission. Captain Harduvel's F-16A aircraft had been manufactured by General Dynamics and had been delivered to the Air Force in August, 1982. The aircraft had 75.2 hours flying time.

About eight minutes into an otherwise uneventful flight, Captain Harduvel radioed the other pilots, "Knock it off. One has a problem. Two join on me. Three continue the route." The nature of the "problem" was not specified. Captain Harduvel executed a hard left turn back to base.

The other pilots saw Captain Harduvel's aircraft enter a small cloud, emerge from the cloud, and then enter a solid cloud bank. The pilots did not see Captain Harduvel's aircraft again.

The aircraft was later determined to have crashed on the side of a mountain at a downward angle of approximately sixty degrees. The witnesses agreed that, for some reason, Captain Harduvel had become disoriented in the clouds, and that when he pulled back on his stick to climb out of the weather, he instead dove into the ground. The engine's afterburner was lit on impact, which indicated a last-second effort to avoid the mountain. The

aircraft virtually disintegrated, but some critical instruments were recovered.

2. *The Contentions:* The nature of the "problem" that caused Captain Harduvel's death was disputed.

Janet Harduvel contended that the problem was an electrical malfunction which caused the aircraft's instruments to conflict or fail. Since an F-16 pilot must rely on his instruments while in a cloud, the malfunction created spatial disorientation. The malfunction occurred, Janet Harduvel contended, because of a design defect, manufacturing defect, negligent design, or negligent manufacturing attributable to General Dynamics.

General Dynamics, on the other hand, contended that the problem was pilot error. General Dynamics maintained that a prescription medication, which Captain Harduvel had discontinued several days before the flight, caused the side effect of disorientation. General Dynamics also denied any defects or negligence and asserted the government contractor defense under the now-defunct *Shaw* test—the test that was the law of the Eleventh Circuit at the time of trial. *See Shaw v. Grumman Aerospace Corp.*, 778 F.2d 736, 746 (11th Cir. 1985), *cert. denied,* 108 S. Ct. 2896 (1988).

3. *The Evidence:* Trial to a jury took place from April 8, 1987 to April 22, 1987 in Tampa, Florida. The trial produced a ten-volume transcript of testimony and hundreds of exhibits. As Senior District Judge Gagliardi remarked, "[m]ore specific evidence was involved in the present case than is sometimes found in products liability and wrongful death actions." *Harduvel,* Mem. Dec. (M.D. Fla. Sept. 30, 1987), at 5; App. C.

Since the aircraft disintegrated at impact, the only direct evidence of the cause of the crash was an analysis of crucial flight instruments recovered at the crash site. Janet Harduvel put on expert testimony that these flight instruments were malfunctioning at the time of the crash. Janet Harduvel also put on evidence to show the pattern of electrical defects in the history of the aircraft, evidence to show the existence of defects in other aircraft from the same production block, and evidence to eliminate the possibility of other potential causes of the accident—such as pilot error or maintenance. General Dynamics put on evidence to dispute these contentions.

With regard to pilot error, General Dynamics relied on the testimony of an emergency room osteopath, Dr. Tommy Love, who testified that Captain Harduvel probably experienced nausea from Bactrim, a prescription drug taken by Captain Harduvel for an infection. Janet Harduvel rebutted Dr. Love's opinion with the testimony of Dr. Harry Gibbons, the FAA's Chief of Medical Research, board certified in aerospace medicine. Dr. Gibbons testified that the records revealed that Captain Harduvel stopped the medication on November 12, 1982, three days before the flight. (R. 10-193, 196). Dr. Gibbons also testified that, after the accident, the Armed Forces Institute of Pathology tested Captain Harduvel's tissue and found no traces of Bactrim. For these, and other reasons developed in the record, Dr. Gibbons testified that Bactrim could have played no role in the crash. (R. 10-198-99). Other F-16 pilots also testified that pilot error was not the cause of the crash.

Excerpts from Mrs. Harduvel's evidence of misdesign and mismanufacture will be discussed later in this petition.

4. *The Jury Findings:* The jury was instructed on strict liability design defect, manufacturing defect, and warning; negligent design, manufacturing, and warning; comparative negligence; and the government contractor defense under *Shaw*. Significantly, as will be seen, General Dynamics did *not* lodge an objection to the instructions or interrogatories to the effect that the manufacturing errors were really complaints of design defect.

The jury found for Janet Harduvel on all six liability issues and found against General Dynamics on its pilot error theory and the *Shaw* government contractor defense. The jury awarded $1.6 million to Captain Harduvel's estate and $750,000 each for his wife and child.

5. *The J.N.O.V. Denial:* After judgment, General Dynamics moved for judgment notwithstanding the verdict and for a new trial. A copy of this motion is appended as Appendix E. Again significantly, nowhere in its motion does General Dynamics contend that the findings of manufacturing defect and error should be set aside because those findings really involved design defects.

The district court granted j.n.o.v. on the failure to warn theories but otherwise denied these motions on September 30, 1987. *See* App. C.

6. *The Eleventh Circuit's Analysis:* In what can best be described as an interesting legal analysis, the Eleventh Circuit, per visiting judge and former Supreme Court Justice Lewis F. Powell, held:

- That the *Boyle* government contractor defense does not apply to *manufacturing* defects. *Harduvel*, 878 F.2d at 1317 (emphasis in original).

- But, "whether a defect is properly designated as one of design or manufacture is *not* governed by a witness' choice of terminology or indeed by *state tort law.*" *Id.* (emphasis added).
- That a Florida law inference of manufacturing defect "is incompatible with the government contractor defense" and "is displaced by federal common law." *Id.*[1]
- That, under the federal common law, without the benefit of the Florida law inference, the plaintiff's theory of manufacturing defect was one of design defect. *Id.* at 1318.
- That specific evidence, "[t]o the extent this was a defect" was not evidence of a manufacturing defect. *Id.* at 1318-1320.
- That, even a review of the evidence "in the light most favorable to the plaintiff" did not evidence a manufacturing defect. *Id.* at 1320.
- That "Plaintiff did present substantial evidence" of a design defect. *Id.* at 1321.
- But, that the design defect claims were subject to the *Boyle* government contractor defense. *Id.*
- That the *Boyle* government contractor defense was satisfied as a matter of law. *Id.* at 1321-22.
- That the district court enter judgment for General Dynamics. *Id.* at 1322.

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1. Where a product is destroyed in an accident and the plaintiff presents evidence to negate possible causes other than product defect, an inference of *manufacturing* defect arises under Florida law. *Worsham v. A.H. Robins Co.*, 734 F.2d 676, 683 (11th Cir. 1984); *Cassisi v. Maytag Co.*, 396 So.2d 1140, 1148-49 (Fla. Dist. Ct. App. 1981). This inference is a well-established principle of Florida products liability law. *See Marcus v. Anderson/Gore Homes, Inc.*, 498 So.2d 1051, 1052 (Fla. Dist. Ct. App. 1986). The district court did not apply this inference, but Petitioner argued on appeal that the district court should have applied it.

The Eleventh Circuit denied panel rehearing and rehearing en banc on October 31, 1989, and this petition followed.

REASONS FOR GRANTING THE WRIT

1. There Exists An Irreconcilable Conflict Among Circuit Courts On Whether State Law Claims Of Manufacturing Defect Can Be Displaced By Federal Common Law.

In *Boyle,* this Court established the "government contract defense"—a defense that arises under the federal common law through the discretionary function exception to the Federal Torts Claims Act, 28 U.S.C. § 2680(a). *Boyle v. United Technologies Corp.,* 108 S. Ct. 2510, 2518 (1988). At the time of the decision, Mr. Justice Brennan noted that the defense was "breathtakingly sweeping" and cautioned that "the injustice will extend far beyond the facts of this case." *Id.* at 2520 (Brennan, J., dissent). This case exemplifies Mr. Justice Brennan's concerns. Further, this case presents an important opportunity for this Court to define the limits of the defense.

Boyle, by its terms, applies *only* to claims of design defect. *Id.* at 2518. It was well established before *Boyle,* and supported by the cases upon which *Boyle* relied, that the government contractor defense has *no* application to claims of *manufacturing* defect. *See, e.g., McKay v. Rockwell Int'l Corp.,* 704 F.2d 444, 451 (9th Cir. 1983), *cert. denied,* 464 U.S. 1043 (1984); *Bynum v. F.M.C. Corp.,* 770 F.2d 556, 573 n.21 (5th Cir. 1985). One commentator, prior to *Boyle,* even remarked that the fact that the government contractor defense did *"not*

apply to and has *never* been successfully asserted in an action involving a defectively mismanufactured government product" was the *only* issue upon which all appellate courts agreed. Note, *Government Contract Defense: Sharing The Protective Cloak of Sovereign Immunity After McKay v. Rockwell International,* 37 Baylor L. Rev. 181, 194 (1985) (emphasis added).

Since *Boyle,* the courts have continued to agree that the government contractor defense had *no* application to mismanufacturing claims. For example, the United States District Court for the Southern District of Georgia held:

> [A]s to plaintiff's allegation of manufacturing defects, state law governs. The federal common law, as articulated in *Boyle,* does not displace state law regarding manufacturing defects. In sum, defendants may not claim the military contractor defense in response to plaintiff's allegation of manufacturing defects.

Schwindt v. Cessna Aircraft Co., slip op. No. CV85-472, 1988 Westlaw 148433 (S.D. Ga. August 31, 1988).

The Fifth Circuit echoed these remarks. *McGonigal v. Gearhart Industries, Inc.,* 851 F.2d 774 (5th Cir. 1988). In *McGonigal,* the plaintiff alleged that his injuries from a premature explosion of a hand grenade were due to the assembler's negligent manufacture—that is, the failure of the assembler to inspect and eliminate defective grenades. *Id.* at 777. Further, the Fifth Circuit allowed the plaintiff an inference of negligence under Texas law as proof of his case. *Id.* at 776-77. As here, the jury found negligent manufacture. *Id.* at 777. The Fifth Circuit held:

> [After *Boyle*], it remains the law of this Circuit that military contractor immunity does not *apply* in cases of defective manufacture. . . . The jury finding removes any protection available under military contractor immunity. The government contractor's defense does not *apply* in this case.

Id. (emphasis added).

Nonetheless, the Eleventh Circuit below held that not only did the government contractor defense *apply* to jury findings of manufacturing defect and negligent manufacturing, but also the federal law *displaced* the state law standards of proof of manufacturing defect. *Harduvel,* 878 F.2d at 1317. This unprecedented and unjustified expansion of the government contractor defense should be reviewed.

A. The Effects Of Displacement Of Florida Tort Law.

In order to understand the impact of the lower court opinion on state tort law and on principles of federalism, it is important to examine what occurred below.

Janet Harduvel put on abundant evidence that the most likely cause of the crash was "wire chafing," a problem that can be caused by manufacturing error.[2] With the limitations of this petition, we are unable to summarize all this evidence, but a few examples should suffice.

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2. There was also evidence that "wire chafing" could be caused by design defects and negligent design. For example, Engineering Change Proposal 0712 noted chafing problems due to "wiring density and a tight fit" which could be corrected by reduction of the height of the power panel. This problem was to be corrected on the assembly line or by retrofit in the field. (Pl. Ex. 67). Captain Harduvel's aircraft was not corrected.

Exhibit 48D contained reports of 138 separate wire chafing incidents. On page 229 and 230 of this exhibit, a potential chafing problem was observed on seven aircraft from the *same* production block as Captain Harduvel's aircraft. This problem was due to "protruding screws."

Exhibit 121, an Air Force Technical Manual published one year after the accident, noted chafing problems caused by "inadequate clamping."

Exhibit 122, a film on wire chafing, a film in production by General Dynamics prior to the crash but delivered to the Air Force later, noted that most chafing problems are "simply a matter of proper routing, tying and clamping" and that protruding screws acted as "miniature saw blades."

But, perhaps the most telling evidence came from General Dynamics' own witnesses. Grant Grumbine, a General Dynamics engineer in the F-16 program, testified:

> Q: [by Mr. Acosta] Now, can you define for us the nature of this chafing problem in terms of seriousness as far as the safety of the aircraft is concerned in 1980?
>
> A: [by Mr. Grumbine] Serious to the degree that we wanted to avoid the condition by all means.
>
> Q: Why?
>
> A: It is a condition that is defined as a problem. *It is a quality problem.* (R. 13-93, 94).

Even more revealing is the testimony of Billy Peebles, General Dynamics' electrical expert:

> Q: [by Mr. Price] Well, can you define for me then what type of concern, if any, there has been

at General Dynamics regarding the wire harness chafing on the F-16?

A: [by Mr. Peebles] Wire harness chafing in my opinion falls into the same category as other possible problems on the airplane, out of tolerance holds, *the assembling of parts, not getting screws tight, general quality of manufacture of the vehicle.* (R. 13-205, 206).

Incredibly, the Eleventh Circuit below held that "whether a defect is properly designated as one of design or manufacture is not governed by a *witness' choice of terminology,* or indeed by *state tort law.*" *Harduvel,* 878 F.2d at 1317 (emphasis added). The Eleventh Circuit then went on to redefine manufacturing defect under the federal common law (using as the sole authority a law school case book) in such a way as to convert the manufacturing evidence into evidence of design defect.

However, the Eleventh Circuit went even further in its displacement of state law! As pointed out in the Statement of the Case, Florida products liability law contains a presumption of manufacturing defect, if the product is destroyed and the plaintiff negates other possible causes of the accident—such as pilot error or maintenance as negated here. *Cassisi,* 396 So.2d at 1148. The presumption was adopted from Pennsylvania law and is a well-established standard of proof in state product liability law. *Id.; see also* W. Prosser, *Law of Torts* § 103, at 672-73 (4th ed. 1971). This presumption is akin to the inference of res ipsa loquitur in negligence. *Id.*

In the name of "federal common law," the Eleventh Circuit displaced this state tort law inference. *Harduvel,* 878 F.2d at 1317.

The Eleventh Circuit's displacement of a state tort law inference is in direct conflict with other courts that, under the government contractor defense, *adopt* state tort law inferences. *See, e.g., McGonigal,* 851 F.2d at 776-77 (Fifth Circuit adopts inference of res ipsa loquitur under Texas law in negligent manufacturing case); *Foster v. Day & Zimmerman, Inc.,* 502 F.2d 867, 872 (8th Cir. 1974) (Eighth Circuit adopts inference of res ipsa loquitur under Iowa law in manufacturing defect case); *see also Lindsay v. McDonnell Douglas Aircraft Corp.,* 460 F.2d 631, 637 (8th Cir. 1972) (Eighth Circuit adopts inference in strict liability as a matter of *federal* law).

The Eleventh Circuit's displacement of a state tort law standard of proof also conflicts in principle with the vast number of government contractor defense cases that rely on state tort law for standards of proof. *See, e.g., Boyle v. United Technologies Corp.,* 792 F.2d 413, 415-16 (4th Cir. 1986) (relies on Virginia products liability law as standard of proof), *vacated and remanded,* 108 S. Ct. 2510 (1988); *Tillett v. J.I. Case Co.,* 756 F.2d 591, 594 (7th Cir. 1985) (relies on Wisconsin wrongful death statute as standard of proof); *Ramey v. Martin-Baker Aircraft Co.,* 874 F.2d 946, 951 (4th Cir. 1989) (relies on Maryland statute for determination of immunity of contractor's employee).

If state tort law definitions of manufacturing defect and state tort law inferences of manufacturing defect (and indeed the testimony of witnesses) can be disregarded in the name of federal common law, then what shall remain of state tort law? In each case, in the interests of undefined "uniformity," state tort law will be displaced —unless this Court establishes limits.

As a practical matter, even under state law, the contractor is not left without a defense to a manufacturing claim. The contractor can put on its own evidence that a manufacturing defect did not cause the accident. *Cassisi*, 396 So.2d at 1151. The contractor can object to the instructions and argue that the manufacturing defect evidence is really design defect evidence. The contractor can argue to the jury to find it liable for design defect, but not for manufacturing defect.

In any event, even if federal common law is to be applied to manufacturing defect cases, then this Court must define the content of that law. Mr. Justice Marshall explored these considerations in *United States v. Kimbell Foods, Inc.*, 440 U.S. 715 (1979). In that case, the Court addressed whether federal law or state law applied to the priority between private liens and government liens. *Id.* at 718. The unanimous Court determined that federal common law applied, but that the *content* of the federal rule must be state law. *Id.* at 727-40. The Court explicitly rejected the approach of the appellate court which "fashioned a new federal rule." *Id.* at 722, 739 n.42. Mr. Justice Marshall noted that adoption of state law as the federal rule of decision was the "prudent course" since "we hesitate to create uncertainties in the absence of careful legislative deliberation." *Id.* at 739-740.

Janet Harduvel asks this Court to reject the Eleventh Circuit's attempt to fashion a new federal common law of product liability with regard to manufacturing defects. Janet Harduvel also asks this Court to reexamine the government contractor defense to prevent interpretations that displace all state tort law and provide blanket immunity to government contractors.

B. The Importance Of These Issues.

The importance of these issues cannot be understated. The federal government is the largest consumer of goods and services in the world. Note, *The Government Contract Defense in Product Liability Suits: Lethal Weapon for Nonmilitary Government Contractors,* 37 Syracuse L. Rev. 1131, 1131 (1987). Last year, the Department of Defense alone expended $137 billion in prime contract awards[3] and $22.5 billion in contracts for research, development, testing, and evaluation. Department of Defense, *100 Companies Receiving The Largest Dollar Volume of Prime Contract Awards,* at 1, 9 (U.S. Gov't Print. Off. 1988); Department of Defense, *500 Contractors Receiving The Largest Dollar Volume of Prime Contract Awards for Research, Development, Test, and Evaluation,* at 4 (U.S. Gov't Print. Off. 1988). It has been noted that "[e]ach day military agencies sign fifty-two thousand contracts—more than fifteen million a year." Note, *Militarism in America,* 20 The Center Magazine 62 (March/April 1987).

The decision below, if upheld, will affect *every* American who is killed or injured by a defectively or negligently manufactured product designed or built under government contract.

Moreover, the questions present issues of recurring national importance—not only in the context of government contractors, but also in the larger context of the interplay between state and federal law. In *Boyle,* this Court struck a balance between state and federal law. The decision below upsets that balance and intrudes upon

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3. General Dynamics was ranked number two on the list of the top defense contractors, with over $6.5 billion in contract awards.

long-established state tort law principles. Mr. Justice Stevens has held that, in such a balance, "[t]he State's interest in fashioning its own rules of tort law is paramount to any discernible federal interest. . . ." *Martinez v. California,* 444 U.S. 277, 282 (1980). State law should be overridden by the federal courts "only where clear and substantial interests of the National Government, which cannot be served consistently with respect for state interests, will suffer major damage if the state law is applied." *United States v. Yazell,* 382 U.S. 341, 352 (1966). Here, there has been a lack of respect for state law.

Finally, the practical effect of the lower court opinion is of national importance. In this case, a government contractor is absolved of fault for a death caused by a defectively and negligently manufactured product. But, more important, the government contractor is provided with even *more* immunity than the United States receives by statute.

Under *Boyle,* the contractor is to share in the immunity of the United States under the "discretionary function exception." *Boyle,* 108 S. Ct. at 2517. However, where the discretionary function exception does not apply, the United States is subjected to liability under "the law of the place where the act or omission occurred." 28 U.S.C. § 1346(b). The United States does not get the benefit of further displacement of state law. *See Richards v. United States,* 369 U.S. 1, 10-11 (1962) (apply whole law of place where negligence occurred, including conflicts rules).

There are no sound reasons to condone such displacement of state law, or other errors discussed hereafter,

in this case.[4] Janet Harduvel asks that this petition be granted.

2. There Exists An Irreconcilable Conflict Among Circuit Courts On Whether The *Boyle* Burden Of Proof Shifts To The Plaintiff To Prove Non-conformance With Specifications.

The Eleventh Circuit further erred in its shift of the burden of proof that required Janet Harduvel, as plaintiff, to disprove the second prong of the *Boyle* government contractor defense.

The second prong of the *Boyle* defense requires proof that "the equipment conformed to specifications." *Boyle,* 108 S. Ct. at 2518. It is well settled that the government contractor defense is an affirmative defense and that the *contractor* must prove each element by a preponderance of the evidence. *McKay,* 704 F.2d at 753; *Trevino v. General Dynamics Corp.,* 626 F. Supp. 1330, 1334 (E.D. Tex. 1986), *affirmed,* 865 F.2d 1474 (5th Cir.), *cert. denied,* 110 S. Ct. 327 (1989).

In this case, a military specification (Military Specification 5088E) prohibited "wire chafing"—the very design defect found by the jury below. Nonetheless, the lower court held that this was a "generic performance directive" that should be disregarded. *Harduvel,* 878 F.2d at 1319 n.3. The General Dynamics witnesses thought otherwise.

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4. In what appears an effort to justify this harsh result, the Eleventh Circuit stated that "[t]he pilots and crews of military aircraft willingly embrace the risks that they assume by volunteering to serve our country." *Harduvel,* 878 F.2d at 1322. One commentator called this view "morally repugnant." R. Craft, J. McCarthy & D. Mitzenmacher, *The Government Contractor Defense: A Fair Defense or the Contractor's Shield* 63 (J. Madole ed. 1986). Whatever may be the risks that our servicemen face so patriotically, "[m]embers of the armed forces do not assume the risk of defective products." *Id.*

Grant Grumbine, General Dynamics' engineer, testified that mil-spec 5088E absolutely prohibits wire chafing in the F-16. (R. 15-85-87). In answer to the question "what military specifications and military standards" would apply to the electrical system of the F-16, Billy Peebles, General Dynamics' electrical expert, testified:

> A: [by Mr. Peebles] I can tell you in part. A part of those primary standards would be MIL Standard 704 and the application paragraphs and MIL Number W5088.
>
> Q: [by Mr. Price] MIL Standard 704?
>
> A: Right. And the applicable version of the contract and MIL W5088. (R. 13-180).

Certainly, this government specification was part of the "reasonably precise specifications" involved in the design of this product. It would test the limits of reason to contend that the government, in the exercise of discretion, approved a design that included wire chafing—a problem that places both men and material in peril. *See Berkovitz v. United States,* 108 S. Ct. 1954, 1958 (1988).

However, that is what the lower court held. Even a cursory reading of the Eleventh Circuit opinion reveals that the court placed the burden on the plaintiff to prove that the equipment did *not* conform to specifications. *Harduvel,* 878 F.2d at 1321. The court did not discuss *any* evidence by which the contractor *proved* that the equipment conformed to specifications. *Id.*

This shift of the burden of proof conflicts with established law and is an improper form of review. The proper burden of proof is important to all litigants at the trial and appellate levels and may be reviewed under this Court's supervisory powers. Janet Harduvel requests such review here.

3. There Exists An Irreconcilable Conflict Among Circuit Courts On Whether, In Cases Where There Was No Factual Determination Under *Boyle*, Remand Is Required.

Alternatively, Janet Harduvel asks this Court to answer the question of whether the Eleventh Circuit was required —by Rule 38(a) and Rule 50(d) of the Federal Rules of Civil Procedure, and by the Seventh Amendment— to remand this case to a jury for a factual determination under the *Boyle* test. This is an important question that addresses the right to trial by jury and the proper procedure of courts of appeals when faced with a completely different legal standard than that determined at trial.

This case was tried under the government contractor defense that was then *the law* in the Eleventh Circuit— the *Shaw* test. *See Shaw v. Grumman Aerospace Corp.*, 778 F.2d 736 (11th Cir. 1975), *cert. denied*, 108 S. Ct. 2896 (1988). Under the *Shaw* test, the contractor was required to prove:

> (1) That it did not participate, or participated only minimally, in the design of those products or parts of products shown to be defective; or
>
> (2) That it timely warned the military of the risks of design and notified it of alternative designs reasonably known by the contractor, *and* that the military, although forewarned, clearly authorized the contractor to proceed with the dangerous design.

Id. (emphasis in original).

In April, 1987, the jury found that General Dynamics had not satisfied this test.

In June, 1988, this Court issued its opinion in *Boyle v. United Technologies Corp.*, 108 S. Ct. 2510 (1988). The Court recognized a defense for design defects if the contractor proved:

(1) That "the United States approved reasonably precise specifications";

(2) That "the equipment conformed to those specifications"; and

(3) That "the supplier warned the United States about the dangers in the use of the equipment that were known to the supplier but not to the United States."

Id. at 2518. Specifically, *Boyle* rejected the *Shaw* test since "it is not a rule designed to protect the federal interest embodied in the discretionary function exception." *Id. Boyle* also held that "whether the facts establish the conditions for the defense is a question for the jury." *Id.* at 2519.

There is no doubt here that a jury did not have an opportunity to weigh the evidence under the *Boyle* test. There is also no doubt that Janet Harduvel was prevented, by relevance among other things, from introduction of evidence to meet or rebut the *Boyle* standards.

Yet, the Eleventh Circuit held—despite the fact that there had been no evidence presented on the *Boyle* test and no jury determination—that the *Boyle* government contractor defense was established as a matter of law. *Harduvel,* 878 F.2d at 1320-22. This was error for three reasons.

First, the decision is in direct conflict with *Garner v. Santoro,* 865 F.2d 629 (5th Cir. 1989). In that case,

as here, the contractor was "precluded from virtually any development of its defense. . . ." *Id.* at 635. The court remanded the case so that the *Boyle* defense could be developed. *Id.* That is what Janet Harduvel asks here.

Second, an appellate court is only required to apply the law at the time it renders its decision if the court can do so without "manifest injustice." *Brady v. School Board of City of Richmond*, 416 U.S. 696, 711 (1974). This Court has determined that manifest injustice occurs when the plaintiff is "not afforded an adequate opportunity to meet or rebut" the new obligations. *Greene v. United States*, 376 U.S. 149, 162 (1964). Such "manifest injustice" has occurred here.

Finally, "an appellate court may not order judgment n.o.v. . . . where the record reveals a new trial issue which has not been resolved." *Neely v. Martin K. Eby Construction Co.*, 386 U.S. 317, 325 (1967) (limitations of Fed. R. Civ. P. 50(d)). In her petition for rehearing, Mrs. Harduvel asserted two new trial issues that required remand: (1) the *Boyle* defense; and (2) newly-discovered evidence—evidence which General Dynamics withheld from document production but which was obtained after trial. Such evidence, appended to the petition for rehearing, included reports, engineering change proposals, time compliance technical orders, and other documentation, all of which demonstrated, unequivocally, that the "wire chafing" problem was a manufacturing problem.

The importance of preservation of the right to trial by jury for litigants, as mandated by Rule 38(a) and the Seventh Amendment, is an independent ground for review. *See, e.g., Wilkerson v. McCarthy*, 336 U.S. 53, 55 (1949). Janet Harduvel asks this Court to preserve her right to trial by jury here.

4. The Lower Court Erred In Its Application Of The Standard Of Review On Motions For Judgment Notwithstanding The Verdict.

Finally, Janet Harduvel asks this Court to review the Eleventh Circuit's application of the standard of review of General Dynamics' motion for judgment notwithstanding the verdict. Although this will involve a review of the record, the Court grants such review when other important questions also motivate the grant of certiorari. *See, e.g., Mobil Oil Co. v. Federal Power Comm'n,* 417 U.S. 283, 292 (1974) (Mr. Justice Brennan); *Memphis v. Greene,* 451 U.S. 100, 102 (1981) (certiorari granted and judgment reversed "because the record does not support that holding").

Here, the district court, on review of all evidence presented, denied General Dynamics' motion for judgment notwithstanding the verdict. The Eleventh Circuit, on review of the same record, granted General Dynamics' motion.

This Court has held that if there are "suggestions in the complaint and evidence of alleged liability," a direction to enter judgment "should not have been given." *Weade v. Dichmann, Wright & Pugh,* 337 U.S. 801, 809 (1949). A review of the record reveals that the Eleventh Circuit discarded such suggestions and evidence. Indeed, even the *Harduvel* opinion reveals that the Eleventh Circuit resolved all inferences in favor of General Dynamics, the Eleventh Circuit adopted evidence favorable to General Dynamics and ignored evidence favorable to the plaintiff, the Eleventh Circuit weighed the evidence and substituted its judgment for the judgment of the trier of fact—all in contravention of the proper standard of review. *See Rakovich v. Wade,* 850 F.2d 1180, 1187-88

(7th Cir. 1988) (en banc) (lengthy examination of the proper standard of review).

Janet Harduvel asks this Court, in the exercise of its supervisory powers, to grant review of the lower court's misapplication of appellate standards. *See* Sup. Ct. R. 17.1(c).

CONCLUSION

For the above reasons, Petitioner, Janet Harduvel, prays that her petition for a writ of certiorari be granted.

Respectfully submitted,

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APPENDIX

APPENDIX A

Janet HARDUVEL, individually, and as the Personal Representative of the Estate of Theodore (Ted) Harduvel, deceased, and on behalf of his minor child, Christina Harduvel,
Plaintiff-Appellant, Cross-Appellee,

v.

GENERAL DYNAMICS CORPORATION,
Defendant-Appellee, Cross-Appellant.

Jet Electronics and Technology, Inc., et al.,
Defendants.

No. 87-3705.

United States Court of Appeals,
Eleventh Circuit.

July 31, 1989.

Widow and estate of deceased Air Force captain brought products liability action against manufacturer of F-16 aircraft. The United States District Court for the Middle District of Florida, No. 84-1450-CIV-T-10, Lee P. Gagliardi, J., entered judgment on jury verdict in favor of widow and estate, and manufacturer appealed. The Court of Appeals, Powell, Associate Justice, retired, sitting by designation, held that: (1) government contractor defense is a matter of federal common law, as is the denomination of a defect as one of design or manufacture; (2) Florida presumption of manufacturing defect in cases where an allegedly defective product is destroyed

is displaced by federal common law; and (3) claim was defeated by government contractor defense.

Reversed.

Howard M. Acosta and George K. Rahdert, St. Petersburg, Fla., for plaintiff-appellant, cross-appellee.

Mark A. Dombroff, Washington, D.C., for defendant-appellee, cross-appellant.

Appeals from the United States District Court for the Middle District of Florida.

Before POWELL,* Associate Justice (Retired), United States Supreme Court, HILL and KRAVITCH, Circuit Judges.

POWELL, Associate Justice:

This diversity action arises out of the fatal crash of a General Dynamics F-16 fighter aircraft piloted by Air Force Captain Theodore Harduvel. After a two-week trial, a jury found General Dynamics liable for defects in the plane and awarded Harduvel's estate and survivors a total of $3.1 million in damages. The primary questions presented in this appeal concern the sufficiency of the evidence in support of this verdict and General Dynamics' entitlement to the federal common law government contractor's defense. Because we think the award of damages in this case is inconsistent with the Supreme Court's recent formulation of the government contractor defense in *Boyle v. United Technologies Corp.*, ____U.S.____, 108 S. Ct. 2510, 101 L.Ed.2d 442 (1988), we reverse.

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* Honorable Lewis F. Powell, Jr., Associate Justice of the United States Supreme Court, retired, sitting by designation.

I.

The subject of this products liability suit is the General Dynamics F-16 "Fighting Falcon" aircraft. The F-16 was developed to replace the F-4 "Phantom" as a primary fighter aircraft for the United States Air Force. The F-16 is the first fighter that employs a "fly-by-wire" system, designed at the request of the government. All of the controls in the aircraft are electric. The control stick is not, as in other aircraft, connected to control surfaces by levers and wires. Rather, the pilot's hand pressure on the stick controls the craft through electric impulses. The F-16 entered operational service with the Air Force in 1979. The Air Force has acquired approximately 1,700 of the planes, including the original F-16A, two-seat F-16B, and later-model F-16C and F-16D, and plans a total force of approximately 2,700. A number of foreign governments have purchased the F-16 for use in their air forces. Some F-16's have been manufactured abroad through cooperatiive ventures among foreign governments, the United States, and General Dynamics. Captain Harduvel's aircraft was an F-16A, serial number 81-692, manufactured by General Dynamics at its Fort Worth, Texas plant and accepted by the Air Force in August 1982.

Captain Harduvel's tragic crash occurred on November 15, 1982, near Kunsan Air Base in South Korea. Harduvel, an experienced military pilot and flight instructor, was leading a flight of three F-16A fighter aircraft on a routine training mission. The other two pilots accompanying Harduvel were Captain David L. Moody, the subject of the training exercise, and Captain Andy C. Denny, who flew behind the other planes in a chase position. The planes were flying at an altitude of approximately 5,000 feet and an airspeed of 480 knots. About eight

minutes into the flight, Harduvel radioed the other pilots, "Knock it off. One has a problem. Two join on me. Three continue the route." In military vernacular, this informed the other pilots that Harduvel was experiencing unspecified difficulty, ordered Moody to maneuver closer to Harduvel, and ordered Denny to continue the mission.

After sending this radio message, Harduvel began a hard left-hand turn back toward the direction of the airbase. Before Moody could join up with Harduvel's craft, Harduvel left available clear air and flew into a small cloud. He emerged from this cloud, and then entered a solid cloud bank. Both Moody and Denny testified that at the time they last saw Harduvel's airplane, it appeared to be flying normally. Although there were no witnesses to the final seconds of the flight, both parties appear to accept that Harduvel for some reason became disoriented in the clouds and inadvertently allowed the plane to go into a steep dive. Shortly after turning into the cloud, Harduvel's aircraft hit the back of a mountain ridge at a downward angle of approximately sixty degrees, with wings level. Captain Harduvel was killed and the aircraft almost completely destroyed.

Captain Harduvel's widow, Janet Harduvel, filed this diversity action against General Dynamics in her home state of Florida in January 1985. She sued individually and on behalf of Harduvel's estate and her minor child, Christina Harduvel. The case was tried before a jury in April 1987. At trial, plaintiff and defendant advanced diametrically opposed theories of the reasons for Captain Harduvel's turn into the clouds and ensuing crash. There were no eye witnesses to what happened in the clouds. Both parties therefore relied on witnesses who qualified

as experts. As often happens in this situation, the experts disagreed.

Plaintiff's experts expressed their opinion that Harduvel's F-16 suffered a massive electrical failure that caused all of his flight instruments to malfunction. Without flight instruments, he became disoriented in the clouds. The witnesses theorized that "wire chafing"—the rubbing of wires in the electrical system against other wires, fasteners, or structural parts of the plane—caused electrical shorts, overheating, and fire in the "right strake" of the aircraft, a forward extension of the wing located beneath and to the side of the cockpit. According to this theory, the electrical malfunction caused a loss of power to the plane's attitude indicators, the instruments that tell the pilot the position of his wings and whether the nose of the aircraft is pointed up or down.

Plaintiff also produced expert testimony to the effect that the Inertial Navigation Unit (INU), that provides primary attitude reference information, was not receiving power at the time of the crash. Other testimony theorized that the Standby Attitude Indicator (SAI), that provides a back-up attitude reference, was displaying an incorrect reading at impact. Plaintiff's experts also testified to a history of wire chafing in F-16 airplanes, and contended that the design of the fighter's electrical system would allow chafing to cause electrical faults that could spread throughout the system and result in a loss of power to flight instruments.

Defendant, also relying on the opinions of expert witnesses, advanced a different theory of the crash. It contended that Harduvel suffered a severe reaction to medication that he had been taking for a prostate infection.

Harduvel had been grounded for two weeks due to this condition, and the fateful flight was his first after being certified fit to resume flying. Defendant contended that the medication, Bactrim, caused Harduvel to experience severe nausea and discomfort during the flight. This prompted Harduvel to abort the mission and attempt to return to Kunsan, and caused him to lose control of the aircraft in the clouds. Defendant also placed great emphasis on the undisputed fact that Harduvel flew into clouds rather than remain in clear air where visibility was good. In defendant's view, whether the problem facing Harduvel was physical or electrical, the turn into the clouds was fatal pilot error, and the ultimate cause of the accident.

Defendant also produced several expert witnesses on the electrical system of the F-16, who testified in support of the theory that wire chafing was not involved in Harduvel's crash. Several of these experts testified as a fact that there had never been a report of an F-16 crash attributed to wire chafing and never been a report of a failure of flight instruments due to chafing. They testified that the F-16 employs redundant wiring to prevent system failures. Defendant's witnesses also gave opinion testimony that the flight control systems on Harduvel's craft were receiving power and functioning normally at the time of the crash. One of these witnesses speculated that the incorrect reading on the SAI when it was found resulted from the force of the crash, and that the instrument was operating correctly at impact.

The jury was instructed on both negligence and strict liability as to plaintiff's claims of design defect, manufacturing defect, and failure to warn. Answering special interrogatories, the jury found in plaintiff's favor on each

of the six claims: that defendant was negligent in designing the F-16, negligent in its manufacture, negligent in failing to warn, strictly liable for design and manufacturing defects in the aircraft, and strictly liable for failure to give adequate warnings. The jury also found against defendant on its defenses of comparative negligence and the federal government contractor's defense. The jury awarded damages of $1.6 million to Captain Harduvel's estate, and $750,000 each to Janet and Christina Harduvel.

Defendant moved for JNOV on all claims, and the district court issued a written opinion. The court denied defendant's JNOV motions as to the design and manufacturing defect claims, thus leaving intact the $3.1 million award, but set aside the verdict on failure to warn, finding that there had not been sufficient proof to take that issue to the jury. The district court also denied a motion by the plaintiff for prejudgment interest. In its opinion, the district court noted that the defendant did not challenge the jury verdicts on the defenses in the JNOV motion, but observed that "the military contractor defense was unsuccessful under a correct application of the test set forth by the Eleventh Circuit in *Shaw v. Grumman Aerospace Corp.*, 778 F.2d 736, 745-6 (11th Cir. 1985)."

Both parties appealed. Plaintiff challenged the district court's entry of JNOV on the failure to warn claim and its denial of plaintiff's motion for prejudgment interest. Defendant argued that the district court erred in denying its motions for JNOV and for a new trial on the manufacturing and design defect verdicts. The defendant relied specifically on the government contractor's defense.

II.

Nine months after the district court issued its memorandum decision in this case, the Supreme Court decided *Boyle v. United Technologies Corp.*, ___U.S.___, 108 S. Ct. 2510, 101 L.Ed.2d 442 (1988). In *Boyle* the Court recognized a broad formulation of the government contractor defense that shields manufacturers of products made for the government from tort liability for flaws in product design. The Court recognized that in certain areas of "uniquely federal interests," state law must be preempted, and if necessary replaced, by federal common law. One such area of uniquely federal interest is the government's procurement of military hardware. The Court grounded the contours of the defense in the "discretionary function" exception to the Federal Tort Claims Act, 28 U.S.C. § 2680(a), that protects the United States from liability for its agents' performance of duties involving discretionary decisions. 108 S. Ct. at 2514-2518. Without the defense, the government's own tort immunity for its discretionary functions would be undermined. Contractors held liable for design features that were the subject of discretionary approval by the government would predictably pass on the costs of liability, ultimately imposing costs on the government that its immunity was intended to preclude. *See id.* at 2518.

[1] The defense derives from the principle that where a contractor acts under the authority and direction of the United States, it shares the sovereign immunity that is enjoyed by the government. *See Yearsley v. W. A. Ross Construction Co.*, 309 U.S. 18, 60 S. Ct. 413, 84 L.Ed. 554 (1940). In the military context, this immunity serves the further important purpose of shielding sensitive military decisions from scrutiny by the judiciary, the branch

of government least competent to review them. Application of ordinary tort law to military design and procurement decisions is not appropriate, for the government "is required by the exigencies of our defense effort to push technology towards its limits and thereby incur risks beyond those that would be acceptable for ordinary consumer goods." *Tozer v. LTV Corp.*, 792 F.2d 403, 406 (4th Cir. 1986) (*quoting McKay v. Rockwell International Corp.*, 704 F.2d 444, 449-50 (9th Cir. 1983)).[1]

[2] Applying these principles, the Court based its formulation of the defense on the earlier decisions of the Fourth and Ninth Circuits in *Tozer* and *McKay, supra:*

> Liability for design defects in military equipment cannot be imposed, pursuant to state law, when (1) the United States approved reasonably precise specifications; (2) the equipment conformed to those specifications; and (3) the supplier warned the United States about the dangers in the use of the equipment that were known to the supplier but not to the United States.

108 S. Ct. at 2518. The three conditions serve to ensure that the defense operates to immunize the contractor only where the government has actually participated in discretionary design decisions, either by designing a product itself or approving specifications prepared by the contractor. *See id.* at 2517.

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1. We also think it important to note that, unlike ordinary tort victims, military personnel are guaranteed "simple, certain, and uniform compensation for injuries or death" pursuant to the Veterans' Benefits Act, 38 U.S.C. § 301, *et seq.*, including life insurance and monthly benefits for surviving spouses and children. *See, e.g., United States v. Johnson*, 481 U.S. 681, 683, 689, 107 S. Ct. 2063, 2065, 2068, 95 L.Ed.2d 648 (1987).

Defendant sought summary judgment in this case under the government contractor defense, and at trial asked for an instruction incorporating the *Tozer* and *McKay* standard later adopted by the Supreme Court. The district court denied the summary judgment motion, and instructed the jury on the basis of this circuit's formulation of the defense in *Shaw*, noting the distinction between *Shaw* and the test used in other circuits. See R4-148, R16-12, R18-195-196. Under *Shaw*, the contractor is entitled to the defense

> only if it affirmatively proves: (1) that it did not participate, or participated only minimally, in the design of those products or parts of products shown to be defective; *or* (2) that it timely warned the military of the risks of the design and notified it of alternative designs reasonably known by the contractor, *and* that the military, although forewarned, clearly authorized the contractor to proceed with the dangerous design.

778 F.2d at 746. In *Boyle*, the Supreme Court specifically rejected the *Shaw* formulation of the government contractor defense. The Court stated that

> it is not a rule designed to protect the federal interest embodied in the "discretionary function" exemption. The design ultimately selected may well reflect a significant policy judgment by Government officials whether or not the contractor rather than those officials developed the design. In addition, it does not seem to us sound policy to penalize, and thus deter, active contractor participation in the design process, placing the contractor at risk unless it identifies all design defects.

108 S. Ct. at 2518. The primary question before us now is the effect of the intervening *Boyle* decision on plaintiff's damage award.

III.

[3] Before turning to the application of the government contractor defense, we must first address plaintiff's contention that the jury's finding of a *manufacturing* defect makes the contractor defense inapplicable here. Plaintiff correctly points out that *Boyle*, by its terms, applies only to defects in design. *See id.; see also McGonigal v. Gearhart Industries, Inc.*, 851 F.2d 774, 777 (5th Cir. 1988). The defense adopted in *Boyle* "does not relieve suppliers of military equipment of liability for defects in the manufacture of that equipment." *McKay*, 704 F.2d at 451. We think plaintiff's case is subject to the government contractor defense notwithstanding the manufacturing defect verdict for two reasons. First, although plaintiff would describe her theory of wire chafing and electrical failure as one involving defective manufacture, we think it clearly is a claim of defective design for purposes of the government contractor defense. Second, the specific evidence on which the district court relied to justify its denial of JNOV on the manufacturing defect claims does not suffice to support the jury's verdict.

A.

[4] In light of the *Boyle* decision, the distinction between manufacturing and design defect claims takes on special significance in the context of accidents such as this one. Plaintiff contends that a finding of defective manufacture under state law suffices to remove the government contractor defense from the case. She also relies

heavily on the fact that some witnesses in the case, including General Dynamics' own experts, referred to wire chafing as a defect of "manufacture." R13-205-206. But whether a defect is properly designated as one of design or manufacture is not governed by a witness' choice of terminology, or indeed by state tort law. The government contractor defense is a matter of federal common law, and so is the denomination of a defect as one of design or manufacture for purposes of applying the defense. Were this not so, state law could operate either to defeat the defense or to expand it improperly, and the defense could not be applied with the uniformity that is a key justification for application of federal common law. *See, e.g., Clearfield Trust Co. v. United States,* 318 U.S. 363, 367, 63 S. Ct. 573, 575, 87 L.Ed. 838 (1943).

[5, 6] For this reason, we cannot accept plaintiff's initial contention that the government contractor defense is inapplicable here due to a Florida law presumption of manufacturing defect in cases where an allegedly defective product is destroyed. Under Florida law, where a product is destroyed in an accident, and the plaintiff presents evidence to negate possible causes other than a product defect, an inference of *manufacturing* defect arises. *See Worsham v. A. H. Robins Co.,* 734 F.2d 676 (11th Cir. 1984); *Cassisi v. Maytag Co.,* 396 So.2d 1140 (Fla. D. Ct. App. 1981). Although the district court declined to apply the inference here for other reasons, we think the manufacturing defect inference is incompatible with the government contractor defense. Military equipment is highly likely to be destroyed in accidents such as Harduvel's. Thus, the Florida law inference would undermine the *Boyle* defense by creating a presumption that it is inapplicable. In cases implicating the federal

interest recognized in *Boyle,* therefore, the inference of manufacturing defect is displaced by federal common law.

[7] In determining whether a claimed defect is one of "design" for purposes of the government contractor defense, the proper focus is the protection of discretionary government functions for which the defense is intended. If a defect is one inherent in the product or system that the government has approved, it will be covered by the defense. Where a defect is merely an instance of shoddy workmanship, it implicates no federal interest. This distinction between "aberrational" defects and defects occurring throughout an entire line of products is frequently used in tort law to separate defects of manufacture from those of design. *See, e.g.,* M. Franklin & R. Rabin, *Cases and Materials on Tort Law and Alternatives* 497 (4th ed. 1987). Stated another way, the distinction is between an unintended configuration, and an intended configuration that may produce unintended and unwanted results.

[8] Applying these principles to the record before us, we think plaintiff's theory of the fatal crash is based on a claim of generally defective design in the F-16 electrical system. The expert on whom the district court primarily relied, Robert Alexander, made numerous reference to "product-wide" defects in the electrical system, and failure to follow proper design procedures to avoid the possibility of chafing. *See, e.g.,* R12-53, 12-89, 12-93, 12-98, 12-135, 12-140, 13-51. Alexander based many of his opinions on plaintiff's Exhibit 48-D, a compilation of field reports of wire chafing prepared by the Air Force. R12-159. Review of Exhibit 48-D and Alexander's testimony reveals that he based his opinion that wire chafing occurred in Harduvel's craft on chafing reports involving many different components of many different aircraft,

R12-159, and not on evidence of a particular defect in the way Harduvel's plane was manufactured.

Plaintiff's Exhibit 122, a training videotape about wire chafing produced for Air Force maintenance personnel by General Dynamics under contract with the Air Force, also illustrates the nature of plaintiff's claim.[2] The film's narrator states:

> . . . changes in maintenance procedures go hand in hand with advanced aerospace technology. The F-16 has more than eleven miles of wire inside its airframe, all of which is subjected to constant vibration, as well as forces up to nine G's. The forces cause movement of the wire harnesses within the structure of the aircraft. This movement can cause chafing.

This film, on which plaintiff has placed heavy reliance throughout this litigation, indicates that wire chafing is a problem inherent in the design of the all-electric F-16.

In sum, the chafing problem as presented in this case is one of placing many wires close together without adequate insulation. R12-53-54, 13-64. The government's promulgation of Military Specification 5088E, a general proscription of chafing that applied to all aircraft, as well as the trial testimony of electrical experts, R16-205, shows that wire chafing was a problem with aircraft

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2. Defendant contends that the district court's admission of the training film was erroneous because plaintiff failed to lay a proper foundation for bringing it into evidence as a party admission and because the film was unfairly prejudicial. Although the record is unfortunately less than clear on the origin of the film, Rl6-60, its title indicates that it was produced by General Dynamics. We also note that the film was edited prior to admission to avoid undue prejudice. We are not prepared to say that admission of the film was an abuse of discretion.

electrical systems that had long been known both in the industry and to the Air Force. The Air Force's decision to produce the first "all-electric" fighter could thus be expected to bring increased risks of chafing. Moreover, with full knowledge of the chafing problem in the design of the aircraft, the Air Force has continued since 1979 to purchase the F-16 as a primary combat fighter plane. Plaintiff has depicted Harduvel's plane not as an aberrational example of improper manufacture, but as a typical F-16 with a design that includes a potential for unwanted wire chafing.

B.

[9] Of course, the fact that plaintiff's general theory of the case presented wire chafing as a product-wide design flaw would not preclude proof of a manufacturing defect as well. But our review of the specific evidence on which plaintiff relies in defense of the manufacturing defect verdict convinces us that the district court erred in denying defendant's JNOV motion.

The wiring system of Harduvel's aircraft was completely destroyed in the crash, and the only evidence concerning wire chafing in this plane was testimony from expert Alexander, who examined the fighter's maintenance records. These records did not report that chafed wires had been found in the aircraft. Rather, Alexander focused on the fact that several of the maintenance items involved in-flight malfunctions that later could not be duplicated on the ground. R12-90-98. He testified that malfunctions that occur in flight but cannot later be duplicated by maintenance personnel are often associated with wire chafing. This evidence is not sufficient to

show the presence of a manufacturing defect. Alexander did not identify any particular site of chafing on Harduvel's F-16, and gave no opinion as to the origin of chafing shown to have existed. His testimony only supported plaintiff's theory that F-16's generally were susceptible to some wire chafing. R12-89.

Plaintiff also contends that Harduvel's plane was defectively manufactured in that it contained an improper DC power panel. Plaintiff's Exhibit 67. "Engineering Change Proposal 712" describes a change that was made to a DC power panel in the right strake area of F-16 fighters. The height of the panel was reduced in order to alleviate chafing that was "primarily a result of wiring density and a tight fit" in the area. The new panel was not installed on Harduvel's aircraft, and plaintiff contends this shows defective manufacture. Examination of Exhibit 67, however, reveals that the change in the power panel took effect only with production Block 15E, while Harduvel's plane came from the earlier Block 15C. Exhibit 67 also indicates that the Air Force issued waivers covering aircraft manufactured before the change. The DC power panel in Harduvel's plane was thus installed as intended by the existing design and accepted by the Air Force. To the extent this was a defect, it was not one of manufacture, and cannot support the manufacturing defect verdict.

[10] Plaintiff, as did the district court below, relies most heavily for support of the manufacturing defect claim on a maintenance report found at pages 229-230 of Plaintiff's Exhibit 48-D.[3] This report describes an incident

3. The district court also relied for its denial of JNOV as to the manufacturing defect verdict on expert testimony that Harduvel's aircraft failed to conform to Military Specification 5088E, which

in which a center screw on panel 2206 in the right strake of an F-16 "protruded" into a wire harness bundle, causing chafing damage. The report concluded that the chafing was produced when maintenance caused the wire harness to be placed in contact with the screw. The report goes on to state that "the contractor has inspected seven aircraft in final assembly at this facility and found the same potential problem exists." The report does not state whether chafing had occurred in the seven aircraft, or whether the "potential problem" was that wires might be moved into contact with screws in the course of future maintenance. The date of the report was September 1982. Harduvel's plane was accepted by the Air Force the previous month. Alexander testified on this basis that Harduvel's plane probably had the same defect, and that this defect was the probable cause of the crash. R12-167-169.

We think the district court erred in holding that the exhibit and testimony sufficed to support the manufacturing defect verdict. First, we cannot accept plaintiff's repeated characterization of the report as one concerning "improperly installed screws." No record evidence supports the proposition that any screw on the F-16 that "protruded" must have been improperly installed. Indeed, the opposite is true. Plaintiff's Exhibit 122, the maintenance training film on wire chafing, *see supra* at 14, describes wire contact with protruding screws as a com-

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prohibits wire chafing on military aircraft. The district court concluded that this failure to meet a specification was a manufacturing defect. Specification 5088E, however, is not directed to the F-16 in particular, see R16-85, but represents only a general admonition against an unwanted condition on military aircraft. The existence of this type of generic performance directive cannot operate to turn any defect involving a condition recognized by the government as undesirable into a "manufacturing" defect.

mon occurrence, and depicts protruding screws in a normal F-16. Similarly, Air Force Time Compliance Technical Order (TCTO) 1078, a September 1982 document outlining inspection procedures for the prevention of wire chafing, directed maintenance personnel to "inspect all . . . protruding screws, hardware, and other objects." Plaintiff's Ex. 48-E. The record indicates that protruding screws were a normal condition in the F-16, not a product of improper installation. The record also shows that the screws involved in the potential chafing described in exhibit 48-D were standard Air Force equipment that defendant was required to use. R17-48-49. The record does not show that the placement or use of the screws conflicted with any design specifications.

Moreover, only seven F-16's in defendant's plant were shown to have a potential chafing problem caused by the protruding center screw. These seven had not left the factory, and had not yet been accepted by the Air Force. R12-170. There is no evidence that any F-16 entered active service with the particular chafing problem described in exhibit 48-D, and no direct evidence that this type of wire chafing ever occurred on Harduvel's craft. Plaintiff cannot rely on a sampling of seven aircraft out of a production block of 300, R16-40, to establish that this particular defect was present in Harduvel's plane and caused the crash. Cf. *Nichols Construction Corp. v. Cessna Aircraft Co.*, 808 F.2d 340, 347-52 (5th Cir. 1985) (evidence showing that 27 out of 15,000 "retention rings" manufactured were cracked insufficient to support finding that defective ring caused a particular crash).

Reviewing the evidence in the light most favorable to plaintiff, we do not think there is "evidence of such

quality and weight that reasonable and fair-minded men in the exercise of impartial judgment," *Boeing Co. v. Shipman*, 411 F.2d 365, 375 (5th Cir. 1969) (en banc), could conclude that plaintiff proved the presence of a manufacturing defect on Harduvel's F-16, and we hold that the district court erred in denying defendant's motion for JNOV on the manufacturing defect claims.

IV.

[11] We therefore apply the three conditions for the government contractor defense set forth in *Boyle* to the record before us. The first requires that the government "approved reasonably precise specifications." 108 S. Ct. at 2518. We think the F-16 design process meets this condition as a matter of law. The Air Force initiated the F-16 project in the early 1970's by issuing a Request for Proposal seeking a contractor to develop the first "fly-by-wire" or all-electric fighter aircraft. R17-126. General Dynamics responded with proposed Air Vehicle Specifications, that were evaluated by the Air Force Systems Program Office. The Office conducted an extensive review of the aircraft, including the electrical system, examining specifications, drawings, and blueprints. R17-106, 130, 142. One group of Air Force engineers was specifically assigned to review of the electrical system. R17-144. The Air Force conducted independent review and analysis of the electrical system design, R15-186, 17-129, and evaluated designs in a Preliminary Design Review, Critical Design Review, and later Physical Configuration Audit that took place between 1973 and 1975 prior to the start of production. R17-23-24, 17-110. Government review and approval of design and production methods continued after production began. Indeed,

the Air Force requested an increase in wiring capacity on the particular block of F-16's from which Harduvel's came. R16-34, 16-106-107. The defense requires "only that the government approve *reasonably* precise specifications," and is met where, as here, the contractor incorporated government performance specifications into a design that the government subsequently reviewed and approved. *Smith v. Xerox Corp.*, 866 F.2d 135, 138 (5th Cir. 1989).

In sum, the design of the F-16 was a result of "continuous back and forth" between the Air Force and General Dynamics. *Koutsoubos v. Boeing Vertol*, 755 F.2d 352, 355 (3d Cir.), *cert. denied* 474 U.S. 821, 106 S. Ct. 72, 88 L.Ed.2d 59 (1985). Although one court has held that the contractor may not avail itself of the defense when the government's approval is nothing more than a "rubber stamp," *see Trevino v. General Dynamics Corp.*, 865 F.2d 1474, 1480 (5th Cir. 1989), that is not the case here. The district court recognized as much in denying defendant's motion for summary judgment under the now-rejected *Shaw* standard, stating that "the Air Force approved the design specifications submitted by General Dynamics," and that "there was a great deal of communication between the government and General Dynamics concerning the aircraft." R4-128. Air Force acquisition of the F-16 was not, as plaintiff contends, a mere purchase of stock aircraft. Cf. *Boyle*, 108 S. Ct. at 2516. Rather, the F-16 was designed through the cooperative "back-and-forth" that is the "reality of the procurement process, as well as a valuable part of that process." *Tozer*, 792 F.2d at 407.

[12] The second condition for the defense requires that the equipment conform to the specifications approved.

108 S. Ct. at 2518. This prong of *Boyle* involves essentially the same analysis that we have discussed above with respect to the distinction between manufacturing and design defects. *See Zinck v. ITT Corp.*, 690 F.Supp. 1331, 1337 (S.D.N.Y. 1988). To say that a product failed to conform to specifications is just another way of saying that it was defectively manufactured. Indeed, plaintiff does not independently address the second prong of *Boyle* in her briefs. For the reasons discussed above, we do not find substantial evidence in the record to support plaintiff's assertion that a manufacturing defect in the electrical system of Harduvel's F-16 was a cause of the crash. Plaintiff did present substantial evidence that the *design*—not the manufacture—of the F-16 wiring system was susceptible to dangerous wire chafing, but that claim is subject to the *Boyle* defense. The second condition for application of the defense is present here as a matter of law.

[13] The final *Boyle* condition requires that the supplier warn the United States about dangers in the use of the equipment that were known to the supplier but not to the United States. 108 S. Ct. at 2518. With respect to this claim, we note that the district court granted defendant's JNOV motion as to the jury's finding that defendant was liable for failure to warn. We agree with the district court's determination that there was insufficient evidence to place this claim before the jury. The record shows that the Air Force knew of wire chafing by 1979 or 1980, well before Harduvel's crash in 1982. R16-27, 17-56. Defendant produced uncontested evidence that its engineers withheld no information on chafing or other problems from the Air Force. R16-26, 16-195. Indeed, much of General Dynamics' knowledge of wire chafing

came from Air Force field reports. R16-27. Plaintiff produced no example of information about the chafing problem that was known to General Dynamics but not conveyed to the Government.

Plaintiff goes a step further, and argues that even if General Dynamics shared knowledge of chafing, it failed to inform the Air Force of the "seriousness" of the chafing problem, causing the Air Force to take insufficient preventive measures. Plaintiff relies on Exhibit 122, the maintenance training film, which states that uncorrected chafing problems can lead to "disastrous" consequences. Because the film was released to the Air Force only after Harduvel's crash, plaintiff contends that General Dynamics at that time was withholding knowledge of the true seriousness of the chafing problem, specifically that chafing could lead to a fatal loss of aircraft. We cannot agree, for there is no evidence in the record that General Dynamics possessed knowledge that chafing was a graver danger than was known by the Air Force. We repeat that the record contains no evidence that a fatal crash had ever been attributed to wire chafing. General Dynamics presented uncontradicted evidence that there had been no reports of a crash caused by chafing. R16-65, 16-183, 16-209, 17-37, no reports of navigation instrument failure due to chafing, R16-65, and no reports of fire in the right strake area of an F-16, R16-209.

Air Force technical orders concerning inspections for chafing, contained in Plaintiff's Exhibit 48-E, reveal that the government was aware of the seriousness of the problem. For example, TCTO-1078, in which the Air Force mandated inspections for chafing at 100-hour intervals, listed numerous areas that must be inspected, including essential aircraft systems and the very right strake panels

on which plaintiff's evidence focused. The order stated that "[f]ailure to accomplish this inspection may result in loss of one or more systems caused by a chafed harness." This order was issued in September 1982, over two months prior to Harduvel's crash. Technical order 1F-16A-508, dated March 22, 1982, warned that chafing could lead to electrical shorting. R16-104. Other technical orders in Exhibit 48-E similarly warn that failure to accomplish them may result in electrical shorts and loss of aircraft systems.

The Air Force was plainly aware of the chafing problem in the F-16 generally, and of the possible serious consequences of chafing. There is no evidence that General Dynamics had knowledge it withheld. Despite its knowledge, the Air Force continued to fly the hundreds of F-16's in operation, and to purchase additional ones. Its decision was simply to address the chafing problem through the regular 100-hour inspections and technical orders. R16-49. We think the third *Boyle* condition is satisfied here as a matter of law.

V.

Young servicemen such as Captain Theodore Harduvel represent the very best of our Nation's citizens. Americans take pride in their bravery and skill, and mourn when their lives are tragically lost. The pilots and crews of military aircraft willingly embrace the risks that they assume by volunteering to serve our country. They are not the "military doubles of civilian motorists," *Tozer*, 792 F.2d at 407, or ordinary purchasers of consumer products. The Supreme Court's adoption of the government contractor defense recognizes that one of these risks is the operation of equipment in which safety concerns

have been balanced against cost and performance. With respect to consumer goods, state tort law may hold manufacturers liable where such a balance is found unreasonable. In the sensitive area of federal military procurement, however, the balance is not one for state tort law to strike. Although the defense may sometimes seem harsh in its operation, it is a necessary consequence of the incompatability of modern products liability law and the exigencies of national defense.

We conclude that plaintiff's claims are subject to the government contractor defense, and that the record before us establishes the conditions of the defense. Accordingly, we reverse the judgment of the district court and remand for entry of judgment in favor of General Dynamics.

REVERSED.

APPENDIX B

IN THE UNITED STATES COURT OF APPEALS
FOR THE ELEVENTH CIRCUIT

NO. 87-3705

JANET HARDUVEL, individually and as of the Personal Representative of the estate of THEODORE (TED) HARDUVEL, Deceased, and on behalf of his minor child, CHRISTINA HARDUVEL,
Plaintiff-Appellants, Cross-Appellees,

versus

GENERAL DYNAMICS CORPORATION,
Defendant-Appellee, Cross-Appellant.

Appeal from the United States District Court for the
MIDDLE DISTRICT OF FLORIDA

ON PETITIONS FOR REHEARING AND
SUGGESTIONS OF REHEARING IN BANC

(Opinion July 31, 1989, 11 Cir. 198__, ____F.2d.____)

(Filed October 31, 1989)

Before POWELL*, Associate Justice (Retired), United States Supreme Court, KRAVITCH, Circuit Judge and HILL, Senior Circuit Judge.

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* Honorable Lewis F. Powell, Jr., Associate Justice of the United States Supreme Court, retired, sitting by designation.

PER CURIAM:

The Petitions for Rehearing are DENIED and no member of this panel nor other Judge in regular active service on the Court having requested that the Court be polled on rehearing in banc (Rule 35, Federal Rules of Appellate Procedure; Eleventh Circuit Rule 35-5), the Suggestions of Rehearing In Banc are DENIED.

ENTERED FOR THE COURT:

/s/ PHYLLIS KRAVITCH
United States Circuit Judge

APPENDIX C

UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF FLORIDA

84-1450-Civ.T-10

JANET HARDUVEL, Individually and as Personal Representative of the Estate of THEODORE HARDUVEL, Deceased, and on behalf of his minor child, CHRISTINA HARDUVEL,
Plaintiff,

-against-

GENERAL DYNAMICS CORP.,
Defendant.

(Filed October 2, 1987)

MEMORANDUM DECISION

GAGLIARDI, Senior D.J.

This diversity action arises out of the fatal crash in Korea of an F-16 aircraft piloted by United States Air Force Captain Theodore Harduvel. His widow, Janet Harduvel, brought suit on behalf of his estate, individually, and on behalf of his minor child, against the manufacturer of the aircraft, General Dynamics Corporation, under theories of negligence and strict products liability. Following a two-week trial, the jury returned a verdict

against General Dynamics on both theories and awarded the plaintiff a total of $3.1 million in damages.

The court now has before it two unrelated post-trial motions. Defendant General Dynamics has moved under Rule 50(b), Fed. R. Civ. P. for judgment notwithstanding the verdict ("j.n.o.v."), and, in the alternative, for a new trial pursuant to Rule 59, Fed. R. Civ. P. Plaintiff has moved to add prejudgment interest to the jury award in favor of the estate.

Background

Although many aspects of this case were at issue, a few undisputed facts may be gleaned from the trial record. Captain Harduvel took off on his last flight on November 15, 1982 from Kunsan Air Base in South Korea on a routine training mission with two other pilots. Harduvel, who was a very experienced military pilot and flight instructor, was flight leader. The other two pilots involved in the mission were Captain David L. Moody, who was the subject of the training flight, and Captain Andy C. Denn, who flew in a chase position. The first few minutes of the flight were uneventful. Several minutes into the flight, Captain Harduvel, radioed the other members of the flight "Knock it off . . . Lead has a problem. . . ."[1] He told Captain Moody, the number two pilot, to join on him, and initiated a hard turn, apparently to return to base. Before Captain Moody could effect a rejoin, Captain Harduvel entered a cloud. His

1. "Knock it off" is apparently Air Force jargon for a signal to other members of a mission to stop what they are doing and is often followed by a message. Trial Transcript, Vol. 2, at 27-28. [Hereinafter references to the trial transcript will be cited as Tr. volume number - page number.]

aircraft somehow became inverted in the cloud, and when Captain Harduvel pulled back on his stick, apparently in an attempt to climb out of the weather, he instead dove into the ground.[2] The aircraft hit the backside of a mountain ridge, wings level, at about a 65° downward angle. The engine's after-burner was lit at impact, which would seem to indicate a last-second effort to avoid the mountain. Captain Harduvel was killed and the F-16 virtually disintegrated.[3]

The issues in this case focused on what caused Captain Harduvel to turn back toward base, to fly into a cloud bank, to become inverted, and to dive his aircraft into the ground. The plaintiff's theory, supported by the testimony of several expert witnesses, was that Captain Harduvel's F-16 suffered a major electrical problem, which disabled the navigational instruments in the aircraft. This theory was supported by several facts. One of the instruments, the standby altitude indicator (SAI), was found to have an incorrect reading at impact. An expert for the plaintiff, R. G. Jesse Dooman, testified that the inertial navigation unit (INU) was not receiving proper electrical power at impact. Tr. 3-75, 81. The INU provided the information to all of the navigational instruments except the SAI.[4] Other evidence showed a

2. The evidence showed that Captain Harduvel became "spatially disoriented" in the cloud and did not realize that he had become inverted. *See, e.g.*, Tr. 2-41.

3. Many of the undisputed facts can be found in the Air Force Accident Investigation Formal Report 110-14, exhibit 77.

4. An F-16's primary altitude reference system is comprised of the ADI, which is a rotating ball located on the cockpit instrument panel, and the heads up display (HUD). These instruments indicate to the pilot the aircraft's altitude with reference to the ground. Both of these instruments receive information from the INU. Ex. 83. If the ADI is not operating properly, it will display warning flags

history of wire chafing problems with the F-16, which is an "electric jet" in which electric power and wiring is critical. The plaintiff presented a film produced by General Dynamics describing the problem. Ex. 122. Another plaintiff's expert, Robert George Alexander, testified concerning the electrical wiring in Captain Harduvel's F-16 and offered his opinion that wire chafing probably caused the accident. Tr. 4-166. Further, the plaintiff's theory that the navigational instruments were disabled was consistent with Harduvel's spatial disorientation, which apparently caused him to dive down out of the cloud when he thought he was pulling up.

The defense theory painted a completely different picture. According to its view, Captain Harduvel suffered a severe reaction to a medication, bactrim, prescribed for a prostate infection, which had kept Harduvel grounded for two weeks prior to his last flight. The defense hypothesized that the nausea and discomfort resulting from that reaction forced Harduvel to attempt to return to base and prevented him from controlling his aircraft as it dove through the clouds.

There was a great deal of evidence presented by both sides in this highly disputed case. General Dynamics presented evidence in an attempt to rebut plaintiff's wire chafing theory. Plaintiff offered expert medical testimony asserting that a drug reaction was not the cause of the accident.

The jury was instructed on both negligence and strict liability theories of liability. Those claims were further

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which tell the pilot to disregard the instrument as unreliable. Tr. 1-185. The SAI is the back-up altitude reference system and is run by a separate power source. However, there was testimony that the SAI could be unreliable at times.

subdivided into claims based on manufacture, design and failure to warn. As well as denying all claims, the defendant asserted comparative negligence, arguing that pilot error on the part of Captain Harduvel was the primary cause of the accident. The defendant also asserted the military contractor defense, alleging that in designing the aircraft it acted at the direction of the federal government and thus was immune from liability.

Answering special interrogatories, the jury found for the plaintiff on each of her six claims. The jury also decided in the plaintiff's favor on both defenses. The jury awarded $1.6 million in damages for Theodore Harduvel's estate, and $750,000 each for his wife and child, for a total of $3.1 million in damages.

Discussion

The defendant now asks this court to overturn the jury's verdict or order a new trial. The defendant's major contention is that the verdict for the plaintiff is totally without support in the evidence. The defendant argues repeatedly that there is "not a single fact in evidence" from which the jury could infer that a defect in the F-16's electrical system caused the crash of Captain Harduvel's aircraft.

I. *Motion for J.N.O.V.*

Federal law governs the appropriate test for judging the sufficiency of evidence in deciding a motion for j.n.o.v. *Boeing Co. v. Shipman,* 411 F.2d 365, 368-70 (5th Cir. 1969).[5] The Eleventh Circuit follows the test set forth in the *Boeing* case:

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5. Note that the Eleventh Circuit adopted as binding precedent all Fifth Circuit cases decided before Oct. 1, 1981. *Bonner v. City of Pritchard,* 661 F.2d 1206, 1209 (11th Cir. 1981) (en banc).

> On motions for directed verdict and for judgment notwithstanding the verdict the Court should consider all of the evidence—not just the evidence which supports the non-mover's case—but in the light and with all reasonable inferences most favorable to the party opposed to the motion. If the facts and inferences point so strongly and overwhelmingly in favor of one party that reasonable men could not arrive at a contrary verdict, granting of the motions is proper. On the other hand, if there is substantial evidence opposed to the motions, that is, evidence of such quality and weight that reasonable and fair-minded men in the exercise of impartial judgment might reach different conclusions, the motions should be denied and the case submitted to the jury.

411 F.2d at 374 (footnote omitted). As stated more succinctly in a recent case, a court should grant a motion for j.n.o.v. "only where the evidence so strongly and favorably points in favor of the moving party that reasonable people could not arrive at a contrary verdict. The district court cannot reweigh the evidence." *Norton v. Snapper Power Equipment*, 806 F.2d 1545, 1548 (11th Cir. 1987).[6]

More specific evidence was involved in the present case than is sometimes found in products liability and wrongful

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6. This court is not bound, as the defendant argued throughout the trial, by any Florida state law rule regarding inferences upon inferences. *See Daniels v. Twin Oak Nursing Home*, 692 F.2d 1321, 1324 (11th Cir. 1982) holding the trial court erred when it applied the Alabama rule against "pyramiding of inferences" in a federal court case. In fact, one recent case specifically stated that "a jury may properly reconstruct a series of events by drawing an inference upon an inference." *Fenner v. General Motors Corp.*, 657 F.2d 647, 650 (5th Cir. 1981). The defendant conceded at oral argument that the federal standard applies. *See* Oral Argument, Tr. at 3.

death cases.[7] Important navigational instruments were found in the wreckage of Harduvel's aircraft. There were eyewitness accounts of his actions and statements in turning back toward base and flying into the clouds. There was a computer projection of his flight path just prior to impact. Tr. 7-117. There was also evidence of Captain Harduvel's flying ability and physical condition to refute other possible explanations for the crash.

However, in this case, as in many such cases, there was no direct evidence of the cause of the accident.[8] The most knowledgeable party, the deceased pilot, was unavailable to testify as to what happened. In addition, the aircraft almost totally disintegrated on impact, so that it was highly unlikely that a specific defect in the product could be ascertained directly from the wreckage. Thus, the plaintiff, out of necessity, could only prove her case through circumstantial evidence. It became a question of experts attempting to reconstruct what most likely occurred.

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7. *See, e.g., Lindsay v. McDonnell Douglas,* 460 F.2d 631, 640 (8th Cir. 1972). The *Lindsay* case involved a suit brought in admiralty by the widow of a Navy pilot killed in an F-4 crash. The pilot was on a night training mission in a new aircraft when the pilot of the other aircraft involved in the mission lost visual and radio contact. The F-4 was last seen moments later by a shrimp boat captain who said he saw the aircraft on fire before it plunged into the ocean. Based on that testimony, the Eighth Circuit held that the plaintiff was entitled to have her case considered on a strict liability theory, stating "if [plaintiff] can show that the crash was caused by some unspecified defect and that no other cause is likely, she has made a submissible case." 460 F.2d at 640.

8. The Eleventh Circuit has stated that in wrongful death cases "[w]e don't require that the cause of death be identified with scientific precision. However, the evidence must support an explanation of the cause of death that is sufficiently articulated that the jury is not permitted to engage in an unallowable degree of speculation." *Daniels v. Twin Oaks Nursing Home,* 692 F.2d 1321, 1328 (11th Cir. 1982) (citation omitted).

Plaintiff put on expert testimony presenting her theory that the accident was caused by a defect in the F-16. The defendant put on its own experts to refute that theory and to support its own theory of what happened. When a court is presented with a "battle of experts" on the issue of causation, it is a function of the jury to weigh conflicting expert testimony. *Worsham v. A. H. Robins Co.*, 734 F.2d 676, 682 (11th Cir. 1984); *see also* Fed. R. Evid. 702. (testimony of qualified expert witness is admissible to assist trier of fact.) The trial judge's role under the rules of evidence is to see that only properly qualified experts present their opinions to the jury. *See Arceneaux v. Merrill Lynch, Pierce, Fenner & Smith*, 595 F. Supp. 171, 173 (M.D. Fla. 1984), quoting *Hewitt v. B. F. Goodrich Co.*, 732 F.2d 1554, 1558 (11th Cir. 1984), *aff'd* 767 F.2d 1498 (11th Cir. 1985). It then becomes the jury's duty to decide which party's experts to believe.

The plaintiff in this case presented substantial expert opinion testimony supporting her version of the cause of the crash. The issue on the present motions, therefore, boils down to whether there were sufficient underlying facts in the record to support those expert opinions. If the plaintiff's expert opinions were based on insufficient or nonexistent evidence, that would be grounds for granting the motion for judgment n.o.v. *See Nichols Construction Corp. v. Cessna Aircraft Co.*, 808 F.2d 340, 351 (5th Cir. 1985) (j.n.o.v. granted where plaintiff's expert, "without adequate foundation, merely [told] the jury what result to reach.")

The plaintiff presented two primary technical experts at trial. The first was R. G. Jesse Dooman, a metallurgical

engineer, who also has experience in aircraft accident investigation. Tr. 3-48, 56. Mr. Dooman examined photographs taken of the INU by the manufacturer, Singer-Kearfott, and testified that it was his opinion that the INU was not functioning properly at impact. Tr. 3-133. Because the INU provided the information for the pilot's primary altitude reference systems, a failure in the INU would indicate a problem with those systems. Tr. 3-68.

The plaintiff's most crucial witness was Robert George Alexander, their electrical and wiring expert. His testimony must be examined closely to see if his opinions lack a sufficient basis in fact. Mr. Alexander is an electrical engineer who currently works for NASA. Tr. 4-24, 25. He reviewed the wiring schematic of the F-16 and other documents to determine how power is supplied to the aircraft's navigational system. Tr. 4-52. He drew a diagram of the electrical panels which showed that four essential buses were the keys to the distribution of power to the navigational instruments and that these buses were in close proximity. Tr. 4-60, 70. The witness testified that it was "highly probable" that wire chafing existed in Captain Harduvel's F-16 and that such problems caused the accident. Tr. 4-166. The plaintiff brought out the factual basis for these opinions during direct examination, and Mr. Alexander was subjected to a vigorous cross-examination. Because Mr. Alexander's opinion has a basis in the other evidence presented, his testimony created a jury question as to whether a product defect in the F-16 caused the accident. Thus, there is no basis for overturning the jury verdict here.

The plaintiff argues that liability may be upheld generally in this case on the theory that an inference of

defect arises when a product malfunctions during normal use. *See, e.g., Cassisi v. Maytag*, 396 So.2d 1140, 1151 (Fla. 1st Dist. Ct. App. 1981). This inference is somewhat analogous to the doctrine of *res ipsa loquitur* in negligence. *Id.* at 1149. This is not a case where such an inference applies, because there is no direct evidence of malfunction, except perhaps of the flight instruments. It was decided at trial that the defendant was not responsible for any defect in the instruments themselves (i.e., the SAI, ADI, or INU) because they were government-provided equipment. The jury was instructed that it could not find against the defendant for any internal defect in the SAI itself, and that issue was effectively out of the case. It is this court's understanding that the plaintiff was not arguing that the instruments malfunctioned because they were defective, but because of an electrical failure, which was the result of a defect in the electrical system. Therefore, the *Cassisi* inference does not apply in this case.

Another case which the plaintiff cites, *Worsham v. A. H. Robins*, 734 F.2d 676 (11th Cir. 1984), is more on point. In *Worsham*, the Eleventh Circuit noted that

> *Cassisi* held that absolute positive proof of product malfunction is not necessary where the product is destroyed, provided plaintiff can point to evidence that the cause of the accident most probably originated in the product. Evidence to so establish a defect can include facts that negate the other causes of the accident and at the same time point to the product as the most logical cause. This permits proof of product defect when the product is destroyed (*Cassisi*), or lost, as here. It is left to the jury to hear the facts and infer a defect in a product if the evidence warrants an inference.

734 F.2d at 683. In the present case, the plaintiff presented substantial medical testimony to negate the defendant's theory that the accident was caused by a physical problem suffered by the pilot. The plaintiff demonstrated Captain Harduvel's skill and experience as an F-16 pilot. The plaintiff also produced some evidence on the maintenance history of the aircraft to show that a maintenance problem did not cause the crash. It was for the jury to weigh competing inferences and decide whether plaintiff had met its burden of proving negligence, product defect and causation. *See Daniels*, 692 F.2d at 1325 n.5 and cases cited therein. The jury may pile inference upon inference, so long as those inferences are reasonable. *Fenner v. General Motors Corp.*, 657 F.2d 650, 651 (5th Cir. 1981), *cert. denied* 455 U.S. 942 (1982).[9] A more detailed examination of the inferences drawn in the present case reveals that all of the inferences are reasonable.

The defendant suggests that the jury was required to make several inferences in order to reach its verdict. The first of these is that the problem which caused Captain Harduvel to turn back to base was with the aircraft and not the pilot. This inference was supported by the evidence. Second, the problem with the aircraft involved its electrical system, and no other system. No other system was implicated by the evidence. Also, the jury was specifically instructed that defendant's liability could not rest on defects found in government-provided equipment. Third, the problem with the electrical wiring

9. As one court stated, consistently enforced, the rule against piling inference upon inference "would make proof by circumstantial evidence virtually impossible, since most generally accepted inferences may be dissected into intermediate inferences." *Cora Pub, Inc. v. Continental Gas Co.*, 619 F.2d 482, 485 (5th Cir. 1980).

was located in the right strake area, and not other areas of the aircraft. The right strake area is where the buses supplying the navigational instruments are located. Fourth, the problem was caused by a manufacturing or design defect and not maintenance. This inference was properly supported by both evidence of manufacturing or design defect and evidence of the observation of proper maintenance procedures. Fifth, the accident was caused by the electrical problem and not pilot error in becoming spatially disoriented. If spatial disorientation was involved (which it undoubtedly was), it does not follow that an electrical problem was not a *cause* of the accident. Whatever caused Captain Harduvel to turn back to base can also be seen as a cause of his demise. The spatial disorientation which he suffered was a *product* of his aborting the mission and attempting to return to base. A loss of navigational instruments explains *both* his need to return to base and his spatial disorientation in the clouds.

This case was submitted to the jury on both negligence and strict liability theories, alleging defects and negligence in 1) design, 2) manufacture, and 3) failure to warn. The primary reason for doing this was the defendant's assertion of the military contractor defense. The jury found for the plaintiff on all six claims and rejected the defenses. The court will now analyze each of these claims in turn to see whether they are supported by substantial evidence.

1. *Design Defect and Negligence*

The plaintiff argued that the F-16 electrical system was defectively designed, which resulted in wire chafing. The primary evidence of design defect was the testimony of

the plaintiff's expert witness, Mr. Alexander, that the wiring in the right strake area involving the essential buses was situated so that an electrical problem could propagate and wipe out all of the power to the navigational instruments. Mr. Alexander testified that General Dynamics failed to meet industry standards. Tr. 5-64. Three of the essential buses were adjacent to each other and interconnected, so that a fire or short could spread. The fourth bus was also in close proximity. Tr. 4-74-76. Mr. Alexander's testimony could reasonably have formed the basis for a finding of defective or negligent design.

2. *Manufacturing Defect and Negligent Manufacture*

Plaintiff presented evidence that several of the aircraft manufactured around the time of Captain Harduvel's aircraft (serial number 0296) were found to have protruding screws in the right strake area. Tr. 4-125-128. These screws could cut into the wire bundles and cause chafing, which is plaintiff's theory of what happened in this case. Such a situation, if it existed, would indicate a manufacturing defect.

Plaintiff also asserts that Captain Harduvel's plane was not manufactured to military specifications, which prohibit wire chafing. Failure to meet military specifications could be characterized as a design or manufacturing defect. In any event, such a defect would fall outside of the parameters subject to the military contractor defense.

3. *Failure to Warn*

Plaintiff claims that General Dynamics knew about the wire chafing problem, but failed to adequately warn the Air Force about it, and that a warning and subsequent

inspection would have prevented the accident. This was the plaintiff's weakest claim, and should not have been submitted to the jury. There was not enough evidence on the failure to warn issue for a reasonable jury to have found negligence or defect, or that any failure to warn caused Captain Harduvel's death. The jury's findings concerning failure to warn are set aside.

4. *The Defenses*

The jury's findings for the plaintiff on both defenses have not been challenged by the defendant in the present motions. It needs only be briefly noted that the military contractor defense was unsuccessful under a correct application of the test set forth by the Eleventh Circuit in *Shaw v. Grumman Aerospace Corp.*, 778 F.2d 736, 745-6 (11th Cir. 1985), *petition for cert. filed*, 106 S. Ct. 2243 (1986):

> As a general rule, the military contractor will be liable, as is any other contractor, to servicemen injured by defects (i.e., unreasonable dangerousness) in the products, or portions or phases of products, that it designs—that is, for which it provides . . . specifications. A contractor may escape liability only if it affirmatively proves: (1) that it did not participate, or participated only minimally, in the design of those products or parts of products shown to be defective; or (2) that it timely warned the military of the risks of the design and notified it of alternative designs reasonably known by the contractor, *and* that the military, although forewarned, clearly authorized the contractor to proceed with the dangerous design.

Id. (emphasis in original). As discussed above, the jury was instructed that defendant was not liable for defects in government-provided equipment.

There was also evidence to support the jury's finding of no comparative negligence on the part of Theodore Harduvel. Although the defense strenuously argued that pilot error was involved, the plaintiff presented several pilot expert witnesses who testified that Harduvel probably inadvertently flew into the clouds because he was "task-saturated" dealing with the problems in the aircraft.

The jury in this case was presented with two competing scenarios of what happened to Captain Harduvel and his F-16 on that last fateful flight. The plaintiff, supported by expert testimony, argued that a major electrical malfunction caused the crash. The defendant was given every opportunity to cross-examine the plaintiff's experts and to present its own witnesses rebutting the plaintiff's case. The defendant's primary argument was that the accident was the result of the pilot's physical reaction to medication. This theory was effectively attacked by the plaintiff's medical expert, Dr. Harry Gibbons, and the jury rejected it. Obviously, from the jury's viewpoint, the plaintiff presented a more convincing explanation. So long as there was some evidence to back up the testimony of the plaintiff's expert witnesses, the verdict was one which a reasonable jury could reach.

II. *Motion for New Trial*

General Dynamics has moved for a new trial on the ground that the verdict is against the great weight of the evidence. This is essentially the same argument made in the motion for j.n.o.v., only against the background of a more lenient standard. The court, of course, has more discretion in granting a new trial than in reversing a verdict. The Eleventh Circuit has stated, however, that the "trial judge's discretion to set aside a jury verdict on the

great weight of the evidence is very narrow." *Hewitt v. B. F. Goodrich Co.*, 732 F.2d 1554, 1559 (11th Cir. 1984). The trial judge may order a new trial to protect against "manifest injustice in the jury's verdict." *Id.* In a recent case in this district, the court stated:

> The gist of Defendant's argument is simply that the jury should not have believed Plaintiff or Plaintiff's expert. The jury did, however, choose to believe them, and that choice cannot be disturbed by the trial judge.

Arceneaux v. Merrill Lynch, Pierce, Fenner & Smith, 595 F. Supp. 171, 173 (M.D. Fla. 1984). In this case, the jury was given essentially the same choice, that is, whether to believe the plaintiff's expert witnesses or not. Since those opinions were supported by evidence, it would serve no purpose to order a new trial.

Defendant General Dynamics also asserts numerous other grounds in its motion for new trial. Many of those grounds involve decisions on admissions of evidence and jury instructions which were made at trial and need not be reconsidered here. Only two issues need to be discussed: (1) excessiveness of damages, and (2) statements made during closing arguments.

A. *Damages*

The total amount of damages awarded by the jury was $3.1 million. The defendant argues that the $1.6 million awarded to the estate was excessive and that there was "no reasonable basis" for awarding $750,000 to the decedent's daughter, which is the same amount awarded to his widow.

The excessiveness of a verdict in a diversity action is controlled by state law. *See T.D.S., Inc. v. Shelby Mutual Insurance Co.*, 760 F.2d 1520, 1530 n.8. Under Florida law, "[t]he verdict should not be disturbed unless it is so inordinately large as obviously to exceed the maximum limit of a reasonable range within which the jury may properly operate." *Griesemer v. Prathers, Inc.*, 413 So. 2d 68, 69 (Fla. Dist. Ct. App. 1982), citing *Bould v. Touchette*, 349 So.2d 1181, 1184-85 (Fla. 1984). In *Lassiter v. International Union of Operating Engineers*, 349 So.2d 622 (Fla. 1977), the Florida Supreme Court stated that "to shock the sense of justice of the judicial mind the verdict must be so excessive . . . so as at least to imply an inference that the verdict evinces or carries an implication of passion, prejudice, corruption, partiality, improper influences, or the like." *Id.* at 627. There is no evidence of any passion or improper influence in the present case.

The amount is supported by evidence and within an allowable range. The plaintiff's expert, who claimed she used conservative figures, testified that Harduvel's lost earning capacity was between $1.3 million and $2.1 million. Even subtracting a reasonable amount as lost support for the wife and child, the figure of $1.6 million has some basis.

As for the amount of damages awarded to the wife and child, the defendant has no basis for attacking the amount of the awards as excessive. A Florida court has upheld damages of $1 million each to the parents of a drowned four-year-old for pain and suffering alone. *Walt Disney World Co. v. Goode*, 501 So.2d 622, 626 (Fla. 5th Dist. Ct. App. 1986). Plaintiff also cites numerous

other Florida cases awarding verdicts of over $2 million in wrongful death cases. Furthermore, it has been stated that jurors are allowed more discretion in awarding damages in wrongful death cases because of the inherently speculative nature of the inquiry. As the Florida Supreme Court has stated in the context of reviewing jury awards, a trial judge is in no position to sit as a "seventh juror with veto power." *Threets v. Hardison*, 255 So.2d 267, 268 (Fla. 1971). The jury was properly instructed under Florida law, and no remittitur should be granted on the damages awarded by the jury.

B. *Closing Arguments*

Defendant argues that it was unduly prejudiced by certain remarks made by plaintiff's counsel in closing argument. One of the statements objected to by defendant involved Mr. Acosta's comments on statements made by the pilot in the General Dynamics film. Those statements of the fictional pilot were struck from the copy of the film shown to the jury. As plaintiff points out, the defendant's counsel previously, in his closing argument, misstated what the pilot in the film had said. The comments by counsel on both sides with respect to the film were not so significant as to have affected the jury's resolution of disputed facts. As to the plaintiff's attorney's erroneous valuation of the F-16 at $14 million, it should be noted that the court instructed the jury that its recollection, not statements of counsel, was to guide its determination of the facts. Any violation by counsel of the local rules was not objected to by the defendant and did not prejudice the outcome of the trial.

III. *Motion to Tax Prejudgment Interest*

Plaintiff has moved to tax prejudgment interest solely on the award of net accumulations to the decedent's estate, which the plaintiff labels as purely "pecuniary loss." The jury awarded $1.6 million to the estate. Plaintiff seeks interest at a statutory rate of 12 percent per year from the date of the accident, for a total of approximately $850,000 in interest.

Florida state law governs the decision on prejudgment interest. *Geyer v. Vargas Productions, Inc.*, 627 F.2d 732, 736 (5th Cir. 1980). The Florida case law turns on whether the claim is "liquidated" or not. *See e.g., Cavic v. Grand Bahama Development Co., Ltd.*, 701 F.2d 879, 888 (11th Cir. 1983). The Florida Supreme Court recently attempted to clarify the standard for determining whether prejudgment interest is available in *Argonaut Insurance Co. v. May Plumbing Co.*, 474 So.2d 212 (Fla. 1985). *Argonaut* involved a subrogation claim brought by an insurance company to recover for a loss paid, alleging that a fire was the result of the defendant's negligence. The court stated that "a claim becomes liquidated and susceptible of prejudgment interest when a verdict has the effect of fixing damages as of a prior date." *Id.* at 214, *quoting Bergen Brunswig Corp. v. State Dept. of Health and Rehabilitative Services,* 415 So.2d 765, 769 (Fla. 1st Dist. Ct. App. 1982). The court held that "when a verdict liquidates damages on a plaintiff's out-of-pocket, pecuniary losses, plaintiff is entitled as a matter of law, to prejudgment interest at the statutory rate from the date of that loss." *Id.* at 215. The court adopted a "loss theory" for the award of prejudgment interest, stat-

ing that the goal of such interest is for the plaintiff to be "made whole from the date of the loss." *Id.*

There are at least two reasons why prejudgment interest should not be granted in the case at hand. First, *Argonaut* itself points out in a footnote that under Florida law "prejudgment interest is not recoverable on awards for personal injury." *Id.* at 214 n.1, *citing Zorn v. Britton,* 162 So. 879 (Fla. 1935). Other cases have referred to the same rule. *See, e.g., Gomez v. Hawkins Concrete Construction Co.,* 623 F. Supp. 194, 202 (N.D. Fla. 1985). Under this general principle, plaintiff could not recover prejudgment interest in what is clearly a personal injury case. It might be argued, however, that damages for monetary loss suffered by any estate are not the type of damages covered by this general rule.

Even if plaintiff is entitled to prejudgment interest on pecuniary damages suffered by the estate, there is another reason for not allowing prejudgment interest in this case. The estate's damages were not, as plaintiff asserts, fixed as of the date of Mr. Harduvel's death. The damages award represents both past losses up to the date of the verdict and future losses reduced to present value as of the date of the verdict. Thus, to award interest on future losses which have been reduced to present value as of the time of the verdict would represent a windfall to decedent's estate.

Plaintiff could have asked that damages to Theodore Harduvel's estate be segregated between past and future losses, or that the present value of the award be determined as of the date of the accident, as is done under New York state law. Since plaintiff failed to do so, she

cannot now complain that prejudgment interest must be denied on the entire amount. Just as no prejudgment interest is awarded under Florida law where it is impossible to separate damages between property and personal injury claims, *see Gomez,* 623 F. Supp. at 202 n.2, no prejudgment interest can be awarded where it is impossible to separate past and future losses. *See also Caynar v. Quality Control Parking, Inc.,* 639 S.W.2d 549, 556 (Tex. 1985).

Conclusion

For the reasons stated, the defendant's motions for j.n.o.v. and new trial are denied. The decision of the jury on the failure to warn issue is set aside. The plaintiff's motion to tax pre-judgment interest is denied.

So Ordered.

/s/ LEE P. GAGLIARDI
Senior U.S.D.J.

DATED: Bennington, Vermont
September 30, 1987

APPENDIX D

28 U.S.C. § 2680(a)

§ 2680. Exceptions

The provisions of this chapter and section 1346(b) of this title shall not apply to—

> (a) Any claim based upon an act or omission of an employee of the Government, exercising due care, in the execution of a statute or regulation, whether or not such statute or regulation be valid, or based upon the exercise of performance or the failure to exercise or perform a discretionary function or duty on the part of a federal agency or an employee of the Government, whether or not the discretion involved be abused.

Fed. R. Civ. P. 38(a)

Rule 38. Jury Trial of Right

(a) Right Preserved. The right of trial by jury as declared by the Seventh Amendment to the Constitution or as given by a statute of the United States shall be preserved to the parties inviolate.

D2

Fed. R. Civ. P. 50(d)

Rule 50. Motion for a Directed Verdict and for Judgment Notwithstanding the Verdict

(d) Same: Denial of Motion. If the motion for judgment notwithstanding the verdict is denied, the party who prevailed on that motion may, as appellee, assert grounds entitling the party to a new trial in the event the appellate court concludes that the trial court erred in denying the motion for judgment notwithstanding the verdict. If the appellate court reverses the judgment, nothing in this rule precludes it from determining that the appellee is entitled to a new trial, or from directing the trial court to determine whether a new trial shall be granted.

U.S. CONST. amend. VII

AMENDMENT VII—CIVIL TRIALS

In Suits at common law, where the value in controversy shall exceed twenty dollars, the right of trial by jury shall be preserved, and no fact tried by a jury, shall be otherwise reexamined in any Court of the United States, than according to the rules of the common law.

APPENDIX E

UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF FLORIDA
TAMPA DIVISION

CASE NO. 84-1450-Civ-T-10

JANET HARDUVEL, Individually and as Personal Representative of the Estate of THEODORE HARDUVEL, Deceased, and on behalf of his minor child, CHRISTINA HARDUVEL,
Plaintiff,

v.

GENERAL DYNAMICS CORPORATION,
Defendant.

MOTION FOR JUDGMENT NOTWITHSTANDING THE VERDICT AND, IN THE ALTERNATIVE, FOR NEW TRIAL

NOW COMES the Defendant, GENERAL DYNAMICS CORPORATION, a corporation, by its attorney undersigned, and moves the Court to set aside the verdict returned by the jury in the above-styled cause, and any judgment that has been or may be entered thereon, and to enter judgment in accordance with Defendant's Motion for a Directed Verdict at the close of all of the evidence in the cause, pursuant to Rule 50 of the Federal Rules of Civil Procedure, on the following grounds:

1. The verdict is contrary to the evidence.
2. The verdict is contrary to law.

3. There is no evidence in the record to support the verdict.

4. There is no evidence in the record from which a jury could lawfully find for the Plaintiff and against the Defendant.

5. It affirmatively appears from the manner in which the jury completed the verdict form submitted to them that they merely arrived at the amount that they desired to award to the estate, the widow and the daughter of the decedent, and then marked the verdict in the manner that they believed would accomplish that desire.

6. Viewing all of the evidence and crediting all reasonable inferences to be drawn from the evidence in favor of the Plaintiff, there is not a single fact to support a finding that the mishap that is the subject matter of the action was proximately caused by wire chafing in the right hand strake of the aircraft.

7. No direct evidence was offered or received of wire chafing in the right hand strake of the aircraft, and no circumstantial evidence was offered or received from which it could reasonably be inferred that there was wire chafing in said area of the aircraft that caused the insulation to be abraded from a single wire in the electrical system.

8. No circumstantial evidence was offered or received from which it could reasonably be inferred that wires in the electrical systems located in the right hand strake of the aircraft were chafed to the extent that bare wires were exposed and came into contact with each other and caused the fire within and between the electrical panels necessary to disable all of the redundant wiring systems serving the cockpit instruments, as postulated by Plaintiff.

9. The verdict was necessarily based upon unfounded speculation and conjecture in the opinions of Plaintiff's experts.

10. The verdict is contrary to the rule of law in Florida prohibiting the piling of inference on inference as drawn from circumstantial evidence.

11. The verdict is contrary to the rule of law in the Federal Courts prohibiting the piling of inference on inference as drawn from circumstantial evidence.

12. In order for the jury to find for the Plaintiff under the rule of law in Florida prohibiting the piling of inference on inference, it would be necessary for them to infer from all of the evidence in the cause the following:

1. That the problem announced by the decedent was a problem pertaining to the aircraft and not a problem pertaining to him personally.

2. That the problem with the aircraft was in the electrical system of the aircraft and not in any of its other seven essential systems:

(a) Propulsion

(b) Flight Control

(c) Hydraulic

(d) Avionic

(e) Structural

(f) Leading Edge Flap Drive System

(g) Cockpit Instruments

3. That the problem with the electrical system of the aircraft was caused by wire chafing in the right

hand strake area and not due to other causes in other areas of the aircraft.

4. That the problem with the electrical system of the aircraft caused by wire chafing in the right hand strake area was due to a design or manufacturing defect, and not to maintenance of the electrical system by the Air Force mechanics.

5. That the problem in the electrical system of the aircraft caused by wire chafing in the right hand strake area resulting from a design or manufacturing defect was the proximate cause of the mishap, and not the error of the pilot in becoming spatially disoriented and causing the aircraft to invert;

and it would be necessary for the jury to find, as to each of the foregoing inferences except the last one, that the inference was conclusively established by the evidence to the exclusion of any and all other reasonable inferences, and, as to the last inference, that it was the most reasonable inference to be drawn from the evidence.

13. In order for the jury to find for the Plaintiff under the rule of law in the Federal Courts prohibiting the piling of inference upon inference, it would be necessary for the jury to find, as to the five inferences stated above, that each of them was the most reasonable inference to be drawn from all of the evidence in the cause to the exclusion of any other equally reasonable inference.

14. That as to the five inferences stated above, none of them can be considered the most reasonable inference to be drawn from the evidence, and each of them is less reasonable or believable than one or more other contrary inferences that may be drawn from all of the evidence in the cause.

And, in the alternative, Defendant moves the Court for a new trial on all of the issues in the cause, pursuant to Rule 59 of the Federal Rules of Civil Procedure, on the following grounds:

1. The verdict is contrary to the evidence.

2. The verdict is contrary to law.

3. There is no evidence in the record to support the verdict.

4. There is no evidence in the record from which a jury could lawfully find for the Plaintiff and against the Defendant.

5. The Court erred in overruling Defendant's objection to opinions advanced by Plaintiff's expert, Dooman, without a factual predicate in the record.

6. The Court erred in overruling Defendant's objection to opinions advanced by Plaintiff's expert, Alexander, without a factual predicate in the record.

7. The Court erred in overruling Defendant's objection to opinions advanced by Plaintiff's expert, Taylor, which were in areas beyond the scope of his expertise.

8. The Court erred in overruling Defendant's objection to opinions advanced by Plaintiff's expert, Moore, which were in areas beyond the scope of his expertise.

9. The Court erred in overruling Defendant's objeciton to opinions advanced by Plaintiff's expert, Cathcart, which were in areas beyond the scope of his expertise.

10. The Court erred in overruling Defendant's objection to the admission in evidence of Plaintiff's Exhibit 48 D, as immaterial and irrelevant matter.

11. The Court erred in overruling Defendant's objection to the admission in evidence of Plaintiff's Exhibit 48 E, as immaterial and irrelevant matter.

12. The Court erred in overruling Defendant's objection to the admission in evidence of Plaintiff's Exhibit 121 A, as immaterial and irrelevant matter.

13. The Court erred in overruling Defendant's objection to the admission in evidence of Plaintiff's Exhibit 121 D, as immaterial and irrelevant matter.

14. The Court erred in overruling Defendant's objection to the admission in evidence of Plaintiff's Exhibit 121 E, as immaterial and irrelevant matter.

15. The Court erred in overruling Defendant's objection to the admission in evidence of Plaintiff's Exhibit 121 G, as immaterial and irrelevant matter.

16. The Court erred in overruling Defendant's objection to the jury viewing a video tape of a simulated flight staged by Plaintiff's expert, Moore.

17. The Court erred in overruling Defendant's objection to the jury hearing the audio accompanying the video tape admitted into evidence as Plaintiff's Exhibit 122.

18. The Court erred in sustaining Plaintiff's objection to the admission in evidence of Defendant's Exhibit EA.

19. The Court erred in sustaining Plaintiff's objection to the admission in evidence of Defendant's Exhibit EI (1) and (2).

20. The Court erred in sustaining Plaintiff's objection to the admission in evidence of Defendant's Exhibit EI (3).

21. The Court erred in denying Defendant's Requested Instruction No. 3.

22. The Court erred in denying Defendant's Requested Instruction No. 6.

23. The Court erred in denying Defendant's Requested Instruction No. 6a.

24. The Court erred in denying Defendant's Additional Requested Instruction No. 2.

25. The Court erred in charging the jury that they could find negligence on the part of Defendant in inspecting the aircraft and in failing to warn the Plaintiff.

26. The Court erred in charging the jury that they could find for the Plaintiff on the Doctrine of Strict Liability for fault in inspecting the aircraft and failing to warn the Plaintiff.

27. The Court erred in failing to charge the jury that in order to find for the Plaintiff on the Doctrine of Strict Liability, it was necessary for the jury to find that the product was "unreasonably dangerous".

28. The Court erred in denying Defendant's Motion for Directed Verdict made at the close of the Plaintiff's case in chief.

29. The Court erred in denying Defendant's Motion for Directed Verdict made at the close of all of the evidence.

30. The amount of the verdict award to the estate as the present value of net accumulations is grossly excessive and has no basis in the evidence.

31. The amount of the verdict award for Christina Harduvel is grossly excessive and has no basis in the evidence.

32. The statement of counsel for the Plaintiff in closing argument to the effect that the value of an F-16 was approximately fourteen million dollars, and the Defendant should be willing to pay more than four million dollars as the value of the life of the pilot has no basis in the evidence, was an impermissible comparison and was calculated to, and did, inflame the jury.

33. The statement of counsel for the Plaintiff in closing argument to the effect that the Defendant well knew of the chafing problem in the F-16 but did not tell the Air Force of its seriousness because the Defendant knew that it would be required to pay for any change in the design, and that this position was common in the industry.

/s/ T. PAINE KELLY, JR.
T. Paine Kelly, Jr.
MacFarlane, Ferguson, Allison
& Kelly
P.O. Box 1531
Tampa, FL 33601
(813) 223-2411
Attorney for Defendant,
General Dynamics Corporation

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that copy of the foregoing has been furnished to HOWARD M. ACOSTA, ESQ., 233 Third Street North, St. Petersburg, FL 33701 and CHARLES M. PRICE, ESQ., 1000 Louisiana, 70th Floor, Allied Bank Plaza, Houston, Texas 77002, by U.S. Mail this 1st day of May, 1987.

/s/ T. PAINE KELLY, JR.
T. Paine Kelly, Jr.